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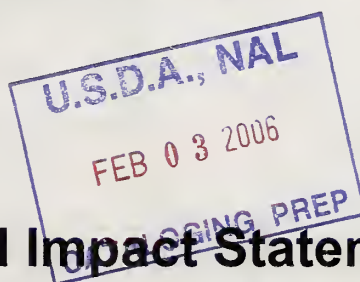
August 2005



# **Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units**

**Including Land and Resource Management  
Plan Amendment 1**

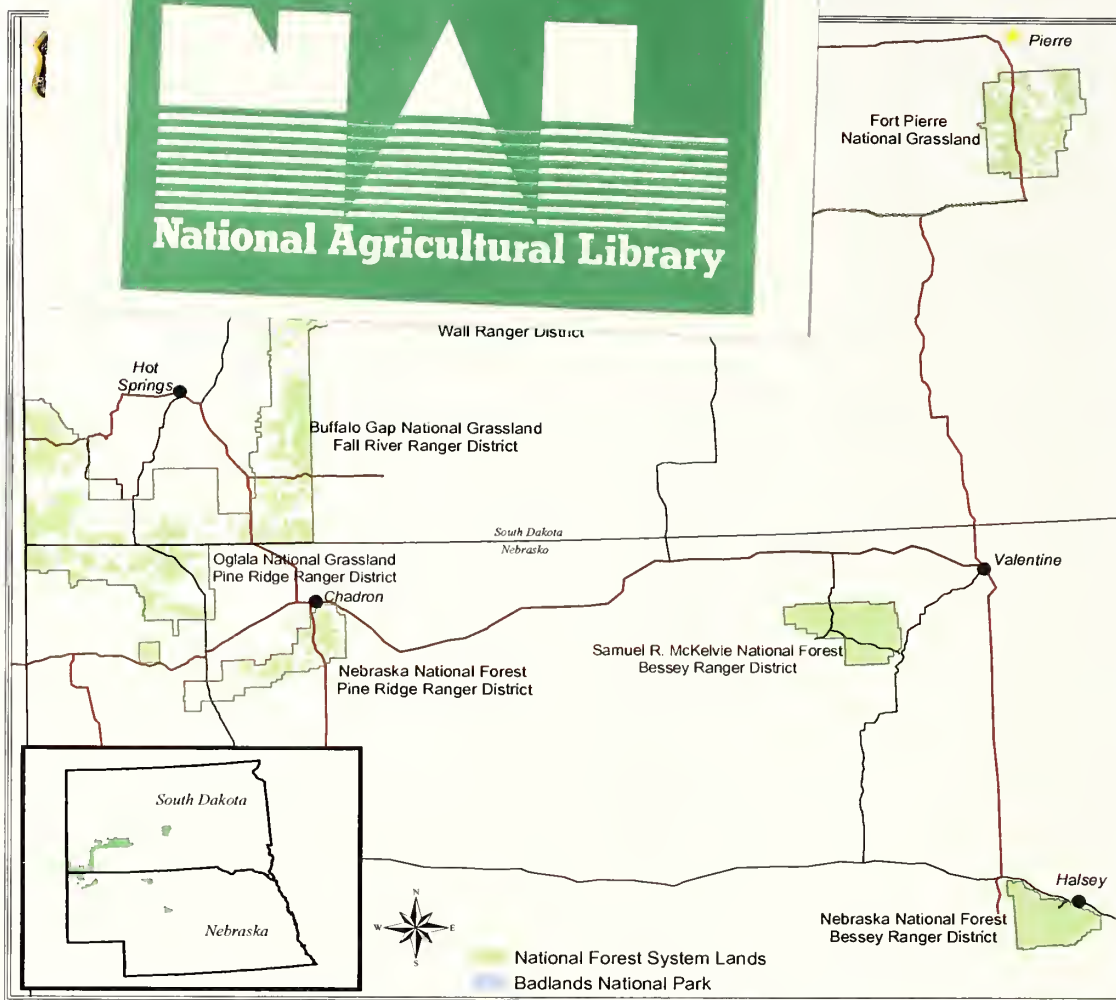
USDA Forest Service  
Rocky Mountain Region  
Nebraska National Forest



## **Final Environmental Impact Statement**



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# **Black-tailed Prairie Dog Conservation and Management on the Nebraska National Forest and Associated Units Including Land and Resource Management Plan Amendment 1**

## **Final Environmental Impact Statement**

USDA Forest Service  
Rocky Mountain Region  
Nebraska National Forest

Located within Dawes, Sioux, Blaine, Cherry, Thomas Counties, Nebraska  
and  
Custer, Fall River, Jackson, Pennington, Jones, Lyman, Stanley Counties, South Dakota

<b>Lead Agency:</b>	<b>USDA Forest Service</b>
<b>Cooperating Agencies:</b>	<b>State of South Dakota USDA Animal and Plant Health Inspection Service</b>
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**ABSTRACT:** The Land and Resource Management Plan (LRMP) for the National Forest System lands in the project area established direction for black-tailed prairie dog conservation. However, the LRMP deferred direction, pending issuance of state prairie dog plans, on how best to manage prairie dogs along property boundaries to reduce unwanted colonization of adjoining agricultural lands. Many landowners are concerned about encroachment of prairie dog colonies from national grasslands to their lands and the resulting impacts on agricultural production, land values, and public health. The Forest Service has reviewed the recently issued South Dakota prairie dog plan for additional guidance and is in general agreement with the goals and intent of the South Dakota plan to manage for long-term, self-sustaining prairie dog populations while trying to reduce or avoid unwanted impacts to neighboring landowners. This Final Environmental Impact Statement has been prepared to disclose the predicted environmental effects of implementing three alternatives for reducing unwanted prairie dog colonization of adjoining private or tribal lands. Alternative 1 relies primarily on non-lethal methods to manage and reduce prairie dog populations along property boundaries. Under Alternative 2, rodenticide use could be authorized in one-mile boundary management zones on national grasslands along private or tribal lands, pending on-site evaluations of complaints. Alternative 3 prescribes expanded rodenticide use and non-lethal management along boundary management zones that are 0.25 or 0.5 miles in width.

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## ABBREVIATIONS AND ACRONYMS

APHIS	Animal and Plant Health Inspection Service
AUMs	Animal Unit Month(s)
B.A.	Bachelor of Arts
B.S.	Bachelor of Science
BA	Biological Assessment
BCR	Bird Conservation Regions
BE	Biological Evaluation
BFF	Black-footed Ferret
BGNG	Buffalo Gap National Grasslands
BGNG	Buffalo Gap National Grassland
BRD	Bessey Ranger District
BTPD	Black-tailed Prairie Dog
CAA	Clean Air Act
CBSG	Conservation Breeding Specialist Group
CD	Compact Disk
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CRP	Conservation Reserve Program
DDT	Dichloro-diphenyl-trichloroethane
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FPNG	Fort Pierre National Grassland
FPNG	Fort Pierre National Grassland
FRRD	Fall River Ranger District
FRWGA	Fall River West Geographic Area
FS	Forest Service
FSM	Forest Service Manual
FWS	U.S. Fish and Wildlife Service
G.A.	Geographic Area
GA	Geographic Area(s)
GIS	Geographic Information System
GPS	Global Positioning System
HUC	Hydrologic Unit Code
LRMP*	Land and Resource Management Plan
M.S.	Master of Science
MA	Management Area
MIS	Management Indicator Species
N.G.	National Grassland
NEPA	National Environmental Policy Act
NF	National Forest
NFMA	National Forest Management Act
NFS	National Forest System

NG	National Grassland
NHPA	National Historic Preservation Act
NNF	Nebraska National Forest
NOA	Notice of Availability
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRDC	National Resources Defense Council
NRHP	National Register of Historic Places
ONG	Oglala National Grassland
ONG	Oglala National Grassland
PRRD	Pine Ridge Ranger District
R.D.	Ranger District
RD	Ranger District
ROD	Record of Decision
SCP	Species Conservation Project
SRMNF	Samuel R. McKelvie National Forest
T&E	Threatened & Endangered Species
U.S.C.	United States Code
USDA	United States Department of Agriculture
WO	Washington Office
WRD	Wall Ranger District

\* LRMP is also referred to as the 'Forest Plan'.



## DOCUMENT STRUCTURE

**How to Read this EIS Document.** The Forest Service has prepared this Final Environmental Impact Statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This FEIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed alternatives. The document is organized into four chapters. Chapters 1 and 2 are summaries while Chapter 3 contains detailed supporting information. Below is an explanation of each chapter and/or section.

**Summary.** This section provides a brief overview of the final environmental impact statement.

**Chapter 1.** Purpose and Need for Action: This chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

**Chapter 2.** Description and Comparison of the alternatives: This chapter provides a more detailed description of the agency's proposed alternative methods for achieving the stated purpose. These alternatives were developed based on key issues raised by the public and other agencies. This section also provides a summary table of the environmental consequences associated with each alternative.

**Chapter 3.** Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the proposed alternatives. Resource areas, including soil, water, air, archeology, paleontology, rangeland, species at risk, recreation, and social and economical factors are listed here.

**Chapter 4.** Lists: Including List of Preparers and Document Recipients: This chapter provides a list of the preparers; agencies, elected officials, American Indian tribes, organizations, and individuals consulted during the development of the FEIS.

**Chapter 5.** Response to Comments: This chapter addresses substantive comments of the Draft EIS.

**Appendices:** The appendices provide more detailed information to support the analyses presented in the FEIS.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Nebraska National Forest Supervisor's Office.

## CHANGES BETWEEN DRAFT AND FINAL

Key changes and/or additions between draft and final are briefly described below for each chapter and appendix. Minor corrections of typographical errors, formatting, and changes in sentence structure for better clarification are not identified.

**Chapter 1 - Purpose of and Need for Action:** Section 1.7 - one additional issue and indicator was added.

**Chapter 2 - Descriptions and Comparison of the Alternatives:** Section 2.3 - the Fall River County (South Dakota) Commissioners submitted "The Fall River County Prairie Dog Conservation Act for National Grasslands" and requested that the Forest Service consider the Act as an alternative. Also, the USDA Animal and Plant Health Inspection Service (APHIS) suggested additional alternatives. The suggested alternatives were considered but eliminated from further analysis.

Section 2.2 - a total of five standards instead of six standards is proposed for revision in an amendment under Alternative 2 and Alternative 3 (preferred). Reference to a desired condition statement was added.

**Chapter 3 - Affected Environment and Environmental Consequences:** Section 3.3 - further discussion on soil erosion sources was discussed. A comparison table between cropland, badlands, and prairie dog colony acreages (and percentages by county) is displayed.

Section 3.6 - herbage production was further discussed and analyzed between the alternatives. Analysis of temporary livestock grazing reductions in animal unit months was updated. Further discussion was given on noxious weeds.

Section 3.7 - effects to the black-footed ferret on any national grassland colonies along the Badlands National Park was further discussed. Adverse biological determinations limited to black-tailed prairie dog and western burrowing owl on the Fort Pierre and Oglala National Grasslands under Alternative 2 were further addressed. After considering public comments, the biological determinations for the northern harrier were changed for all alternatives, from "no impact" to "may adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide.

Section 3.8 - Table 3-13 was corrected for predicted acres on several Geographic areas. Also, current and predicted acres were illustrated for other non-MIS Geographic Areas. In addition to "at risk" and management indicator species, discussion and effects analysis for other wildlife which commonly use prairie dog colonies was added.

Section 3.10 - additional economic analysis was conducted and added to this section.

Section 3.13 - after reviewing comments, there would be an expected irretrievable commitment of resources from Alternatives 2 and 3, but not irreversible.

Section 3.14 - the cumulative effects discussion was further expanded to several areas, including rodenticide use, droughts and markets, disease, land use, and vegetative management.

Section 3.15 - two additional disclosures were added, the Nebraska National Forest Land and Resource Management Plan and the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan. Appendices are referenced for each of these plans.

**Chapter 4 - Lists: Including List of Preparers and Document Recipients:** No key changes were made to this chapter.

**Chapter 5 – Responses to Comments Received on the Draft EIS:** This is a new chapter that is required in the FEIS. It discusses the content analysis of the public comments received and our response to those comments.

**Appendix A – Maps:** Map numbers were assigned to each map (i.e., A-1, A-2, A-3, etc.).

**Appendix B – Implementation Plans:** Changes to Appendix B are reflected in the changes made in Chapter 2 under each alternative.

**Appendix C - LRMP Amendments:** A total of five standards instead of six standards are proposed for revision in an amendment under Alternative 2 and Alternative 3 (preferred). A desired condition statement was re-written for clarification for the Oglala Geographic Area.

**Appendix D – Implementation Costs:** No key changes were made to this appendix.

**Appendix E - Biological Assessment and Evaluation:** Analysis of the alternatives was limited to Alternative 3 (preferred) for the FEIS. Analysis of all three alternatives can be found in the DEIS. Map numbers were assigned to each map (i.e., E-1, E-2, E-3, etc.) An additional map was added for black-footed ferret observations on the west half of Buffalo Gap National Grassland (Map E-9b).

**Appendix F - Common and Scientific Names:** Several species were added to the list.

**Appendix G – Glossary:** Definitions of encroachment were added.

**Appendix H - Consistency Check with the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan:** This is a new appendix.

**Appendix I – Consistency Check with the LRMP:** This is a new appendix.

**Appendix J – Determination of Significant or Non-Significant LRMP Amendment:** This is a new appendix.



# CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

## 1.1 Introduction

This Final Environmental Impact Statement (FEIS) addresses the conservation and management of black-tailed prairie dogs (*Cynomys ludovicianus*) on several National Forest System (NFS) units in Nebraska and South Dakota. For purposes of this FEIS, the term “conservation” is used in reference to activities for helping ensure long-term persistence and health of black-tailed prairie dog populations across the project area. The term “management” is used primarily in context of reducing prairie dog populations and their habitat along property boundaries. Since prairie dog conservation direction is already established in the Land and Resource Management Plan (LRMP) for the national grasslands and forests in the project area, the primary focus of this FEIS is evaluating alternatives for managing and reducing prairie dogs along property boundaries in response to concerns of neighboring landowners.

The national grasslands and forests illustrated in Table 1-1 define the project area and are collectively managed as an administrative unit (Nebraska National Forest and Associated Units) of the Forest Service. The administrative unit includes the Buffalo Gap and Fort Pierre National Grasslands in South Dakota and the Nebraska and Samuel R. McKelvie National Forests and Oglala National Grassland in Nebraska. For an overview of the environmental, social and economic characteristics of each NFS unit in the project area, consult the Final Environmental Impact Statement (FEIS) for the revised Land and Resource Management Plan (USDA Forest Service 2002 at [www.fs.fed.us/ngp](http://www.fs.fed.us/ngp)).

Current black-tailed prairie dog distribution in the project area is shown in Table 1-1 and Appendix A - Maps. There are no known prairie dog colonies on the Samuel R. McKelvie National Forest and Pine Ridge Ranger District of the Nebraska National Forest.

**Table 1-1. National grasslands and forests in the project area with black-tailed prairie dog colonies**

National Grassland/Forest	NFS Land Area (Acres)	Current Active Colony Acreage <sup>1</sup> (Fall 2004)	Counties and State
Nebraska National Forest (Bessey Ranger District)	90,200	90	Blaine and Thomas Counties, Nebraska
Oglala National Grassland	94,200	2,220	Dawes and Sioux Counties, Nebraska
Buffalo Gap National Grassland	589,200	26,030 <sup>2</sup>	Custer, Fall River, Jackson and Pennington Counties, South Dakota
Fort Pierre National Grassland	116,100	1,340	Jones, Lyman and Stanley Counties, South Dakota
All Areas Combined	889,700	29,680	11 Counties in Nebraska and South Dakota

<sup>1</sup> Prairie dog survey information from global positioning system (GPS)

<sup>2</sup> Does not include approximately 6,780 acres that were treated with rodenticide in 2004

Since the 1960's, the Forest Service has been challenged to balance our duty to conserve both prairie dog habitat and our agricultural heritage, both vital attributes of the national grasslands we manage for the public. Through the late 1960s and early 1970s, Forest Service prairie dog plans called for colonies to be limited to approximately 3,000 acres through annual use of prairie dog rodenticide. Rodenticide use was halted for several years with the issuance of Presidential Executive Order 11643 in 1972 that banned use of chemical toxicants on federal lands that pose secondary poisoning risks to non-target species. In 1978, rodenticide use resumed when the Forest Service issued an environmental impact statement and prairie dog plan (USDA Forest Service 1978) that prescribed use of a newly developed rodenticide formulation (2 percent zinc phosphide on steam-rolled oats, EPA Label Registration No. 6704-74) along with vegetation management through livestock grazing adjustments in the project area. By then, prairie dog colonies had expanded ten-fold, almost to 30,000 acres. The new direction prescribed retention of approximately 5,200 acres (minimum) of active colonies. The remaining colony acreage was prescribed for potential rodenticide application to reduce prairie dog populations and to maintain forage for permitted livestock on the national grasslands. Rodenticide use was also prescribed to help reduce prairie dog conflicts along national grassland property boundaries with neighboring landowners. By the time this direction was fully implemented in 1981, the acreage of active prairie dog colonies combined with those recently treated with rodenticide totaled almost 44,000 acres.

The 1978 prairie dog direction was amended in 1981 (USDA Forest Service 1981) by further reducing the minimum acreage of active colonies to be retained (no rodenticide) to approximately 3,100 to address continued prairie dog encroachment along property boundaries. This direction remained in effect until 1989 when the direction was once again modified, primarily in response to the recent discovery and successful captive propagation of the endangered black-footed ferret in Wyoming. The Forest Service, with new information on black-footed ferrets and the possibility of future ferret reintroductions, developed a new plan in 1989 (USDA Forest Service 1989) to increase the colony retention acreage from 3,100 acres up to 8,000 acres, mostly located in the Conata Basin area of the Buffalo Gap National Grassland. Annual black-footed ferret releases in Conata Basin were initiated in 1994 under the 1989 prairie dog direction and a separate black-footed ferret reintroduction FEIS (U.S. Fish and Wildlife Service et al. 1994). In 2002, the Forest revised its Land and Resource Management Plan (LRMP) that provided further guidance for managing the habitat for prairie dogs, black-footed ferret, livestock use and other needs. The 2002 LRMP and this ROD continue to direct management of National Grassland habitat for the black-footed ferret in the Conata Basin.

Other events have set the stage for further modifications to prairie dog conservation and management direction.

- In 1998, the black-tailed prairie dog was petitioned for listing and protection under the Endangered Species Act (ESA). In 2000, the U.S. Fish and Wildlife Service designated the black-tailed prairie dog as a candidate for possible listing as a threatened species under ESA protection (U.S. Fish and Wildlife Service 2000). The USFWS had concluded that listing of this species for federal protection under the Endangered Species Act was "warranted". During this period, there was considerable interest by affected States to maximize black-tailed prairie dog conservation on public

land to prevent the need to list this species so as to reduce pressure on private agricultural lands to otherwise potentially expand prairie dogs. The Forest Service followed by issuing national guidance to limit use of prairie dog rodenticide to situations involving public health and safety risks and damage to facilities. This direction was incorporated into the revised Land and Resource Management Plan (LRMP) and 2002 Record of Decision.

- The Chief of the Forest Service rescinded the national guidance in February, 2004, and encouraged all field units to use existing agency authorities, including direction and guidance in LRMPs, to further the conservation and management of black-tailed prairie dogs on national grasslands and forests. In August, 2004, the U.S. Fish and Wildlife Service concluded from updated population information and the extent of range-wide management planning ongoing for the species especially since conferral of candidate status, that the species was not likely to become endangered in the foreseeable future and removed it from the candidate list.
- The recent drought in South Dakota and Nebraska has led to accelerated expansion of prairie dog colonies, and increased complaints about unwanted colonization of lands adjoining national grasslands. In response to these complaints and a request by the Governor of South Dakota, application of prairie dog rodenticide (2% zinc phosphide, EPA Label Registration No. 56228-14) in selected colonies was conducted by the State of South Dakota on private lands and by the USDA Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) on the Buffalo Gap National Grassland in 2004. Prior to the initiation of rodenticide use, a lawsuit was filed by several conservation/environmental organizations. A stipulated settlement agreement was reached that allowed emergency rodenticide use. As part of the stipulated settlement agreement, no further use of rodenticide would occur until the completion of an environmental impact statement (EIS) and LRMP amendment addressing a long-term solution for management of prairie dog colonies.

## 1.2 Authorities

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**Forest Service.** The laws, policy, and direction applying to the use of rodenticides and management of prairie dogs by USDA Forest Service can be found in the LRMP FEIS (page 3-157).

**Animal and Plant Health Inspection Service – Wildlife Services.** The Secretary of Agriculture is authorized by Congress to protect American agricultural and other resources and interests from damage associated with wildlife. That authority includes, if requested, protection of threatened or endangered wildlife and to resolve conflicts between wildlife and human health and safety concerns pursuant to the Act of March 2, 1931, as amended, 7 U.S.C. 426-426b<sup>1</sup> and the Act of December 22, 1987, 7 U.S.C. 426c.

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<sup>1</sup> Section 426 as amended on October 28, 2000, authorizes the Secretary of Agriculture to "... conduct a program of wildlife services with respect to injurious animal species and take any action the Secretary considers necessary in conducting the program. The Secretary shall administer the program in a manner consistent with all of the wildlife services authorities in effect on the day before October 28, 2000."



Formerly, section 426 specifically mentioned and included management of prairie dogs on National Forest System (NFS) lands, state lands, other areas of the public domain, and private lands.<sup>2</sup> The authorities imparted to the Secretary of Agriculture by the Act of March 2, 1931, as amended, and the Act of December 22, 1987, have been delegated to APHIS, a USDA agency. Within APHIS, these authorities have been delegated to the Wildlife Services (WS) program. Accordingly, APHIS-WS's authorities support and authorize its mission of providing Federal leadership and expertise in managing problems caused by injurious and/or nuisance wildlife to agricultural and other natural resources, including other wildlife; minimizing potential wildlife harm or threats to human health and safety, e.g. zoonotic diseases from wildlife to humans and wildlife causing civilian or military airplane crashes.<sup>3</sup>

The APHIS-WS' "wildlife services" authorities cited above plus other statutory authorities<sup>4</sup> likewise authorize APHIS-WS to enter into cooperative agreements with Federal agencies, States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of injurious animal species and/or nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases. APHIS-WS activities and assistance are contingent upon cooperative funding from those cooperating and/or requesting APHIS-WS's services, including Federal, State, local, private or public associations or organizations, or individuals, and/or upon appropriations and/or specifically delineated authorization or direction from Congress.

### 1.3 Purpose and Need for Action

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The LRMP and 2002 ROD provide programmatic direction for conserving and managing black-tailed prairie dogs on the national grasslands and forests in the project area. This direction prescribes use of lethal and non-lethal tools to regulate and manage prairie dog populations. For example, rodenticide can be used on the national grasslands and forests to reduce or eliminate prairie dog populations posing health and safety risks or causing damage to facilities. This direction involves a small number of prairie dog colonies and results in minimal rodenticide use. The larger and more extensive issue is encroachment of prairie dog colonies from national grasslands onto adjoining private or tribal agricultural lands, where ranchers and farmers are concerned about losses in agricultural production, costs of managing prairie dogs, effects on land values, and risks to health and safety. The Forest Service decided in the LRMP to defer this larger issue until the States of Nebraska and South Dakota completed ongoing prairie dog management planning. The Forest Service also indicated that it would consult statewide prairie dog plans, once they

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<sup>2</sup> Section 426 was formerly worded as follows: "The Secretary of Agriculture is authorized to ... determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory, or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, ... and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, fur-bearing animals, and birds, and for the protection of stock and other domestic animals ...; and to conduct campaigns for the destruction or control of such animals.

<sup>3</sup> See [www.aphis.usda.gov/ws/mission.html](http://www.aphis.usda.gov/ws/mission.html). Examples of APHIS-WS activities include: training of wildlife damage management professionals; development and improvement of strategies to reduce losses and threats to humans from wildlife; collection, evaluation, and dissemination of management information; cooperative wildlife damage management programs; informing and educating the public on how to reduce wildlife damage; and providing data and a source for limited-use management materials and equipment, including pesticides.

<sup>4</sup> Section 713 of the Agriculture, and Related Agencies Appropriations Act of 2003.

were released and available, for further guidance on how best to respond to unwanted colonization of adjoining agricultural lands (Guideline H-2 in Chapter 1 of the LRMP). The ROD specifically stated:

“As part of being a good neighbor, we will implement management practices such as livestock grazing, land exchange, and prescribe fire that will likely contribute to the increase of prairie dog populations and to reduce conflicts with adjacent landowners. So as to not place a disproportionate share of prairie dogs on national forest system lands, I will work with the states of Nebraska and South Dakota in the preparation of the State-wide prairie dog conservation plan, pursuant to 36 CFR 219.7. I intend to implement the State-wide conservation plan to the extent allowable by law and policy in providing direction for the control of unwanted colonization of prairie dog onto private lands. Should the State-wide conservation plan conflict with provisions of this LRMP, I will propose an amendment to make the LRMP consistent with the State-wide conservation plan.”

A February 12, 2004, memo from the Washington Office rescinded the policy letter regarding use of prairie dog rodenticide on National Forest System lands because the restrictions on rodenticide had been incorporated in LRMPs for most prairie dog habitat on NFS lands. Further, the memo stated that many of the LRMPs also emphasize the importance of considering the various state prairie dog management plans. The memo directed that any future rodenticide use proposals are to be carefully reviewed and coordinated with any approved state prairie dog management plans.

On May 5, 2004, USDA Deputy Under Secretary, David Tenny, completed a discretionary review of appeal decisions for the LRMP and affirmed the Chief's appeal decision with instructions regarding the management of prairie dog populations. As the Forest Service implemented the revised LRMP, the Nebraska National Forest was directed to ensure that local land managers work together with state and county officials and local landowners to aggressively implement the spirit and intent of the good neighbor policy. Specifically, the Nebraska National Forest was instructed to work with local interests and landowners to use the full suite of management tools available to reduce the potential for prairie dog colonies to expand onto adjacent non-federal lands. This aggressive application of the good neighbor policy should involve other governmental and local interests, as appropriate, and be done in conjunction with state prairie dog management plan.

In May 11, 2004 letter to the Chief, Regional Forester Rick Cables outlined the actions to be taken in regards to prairie dog management, specifically unwanted colonization onto adjacent non-federal lands. The Regional Forester's letter stated:

“As part of being a good neighbor, aggressive management actions will be taken to achieve LRMP objectives and minimize conflicts with adjacent landowners. We will accelerate active management of unwanted colonization by applying appropriate tools. Prairie dog conservation plans developed by the states will be consulted for guidance on the appropriate response to unwanted colonization onto adjacent non-federal lands. As stated in the ROD, we intend to implement the state-wide prairie dog conservation strategies to the extent allowable when they become available. Any changes in direction for prairie dog control will be done with appropriate consultation and coordination.”



The South Dakota Black-tailed Prairie Dog Conservation and Management Plan ([www.sdgap.info/wildlife/hunting/prairiedogfinalplan.pdf](http://www.sdgap.info/wildlife/hunting/prairiedogfinalplan.pdf)) was released in December, 2004, with a revision in January, 2005. The Forest Service is in general agreement with the goals and intent of the South Dakota plan to manage for long-term, self-sustaining prairie dog populations while trying to reduce or avoid unwanted impacts to landowners. With the new plan in hand, the Forest Service is now evaluating, as it indicated it would in the LRMP, the best way to address encroachment of prairie dogs from national grasslands onto adjoining private or tribal agricultural lands. Appendix H describes how the Forest Service addressed the objectives and strategies identified in the South Dakota Black-tailed Prairie Dog Conservation and Management Plan. Other prairie dog conservation and management direction prescribed in the LRMP is already being implemented.

The State of Nebraska has not issued a statewide prairie dog plan. However, the alternatives being evaluated in this FEIS address prairie dog conservation and management on the Forest Service administered lands in both Nebraska and South Dakota. This will assure that the LRMP provides balanced and integrated guidance across the administrative unit. Although the State of Nebraska does not currently have a prairie dog plan, the Forest Service will continue to closely coordinate prairie dog management with Nebraska, as well as South Dakota.

## 1.4 Proposed Actions

The Forest Service proposes the following actions to meet the purpose and need described in Section 1.3 above:

- 1) Continue implementing prairie dog conservation direction in the LRMP,
- 2) Develop a project-level and site-specific implementation plan to reduce unwanted colonization of adjoining agricultural lands along national grassland boundaries,
- 3) Amend the LRMP as needed to support the site-specific implementation plan and to modify the boundary of the Conata Basin black-footed ferret reintroduction area. The ferret area modification is proposed because it has been determined that a block of 5,130 acres of land is unsuitable for black-footed ferrets and is isolated from the core ferret habitat in Conata Basin.

Alternatives for implementing the proposed actions address a suite of management tools, non-lethal and lethal, including rodenticide and limited shooting in selected colonies to reduce unwanted colonization on adjoining agricultural lands. Rodenticide (2 percent zinc phosphide grain bait) when applied to label specifications is highly effective in eliminating or reducing selected prairie dog populations (Tietjen 1976, Uresk et al. 1986) while shooting is typically less effective but could be a management tool for limiting or regulating prairie dog populations (Vosburgh and Irby 1998). Prairie dog shooting is regulated primarily by state wildlife agencies. However, in 1998 the Forest Service issued a shooting closure in the Conata Basin black-footed ferret habitat. This closure remains in effect.

Non-lethal management tools considered include landownership adjustment and third party solutions. Third party solutions involve other government agencies or private

organizations that provide innovative solutions to site-specific prairie dog management issues. These solutions include but are not limited to financial incentives, conservation agreements and conservation easements with willing landowners to help conserve prairie dogs on their lands and national grasslands. Other non-lethal tools that may be effective and used in a limited number of situations are live-trapping and prairie dog barriers, both visual and physical. Visual barriers could consist of vegetation zones where livestock grazing is significantly reduced or excluded to increase the height and density of grassland vegetation. This reduces visibility and the ability of prairie dogs to detect predators, thus discouraging prairie dog dispersal and colony expansion into the heavier vegetation (Knowles 1986, Urešć 1987, Fagerstone and Ramey 1996). However, the effectiveness of vegetation barriers is substantially reduced during low precipitation periods (droughts). Visual barriers could also be constructed using solid fabric fences that prairie dogs will, at least temporarily, avoid because of reduced visibility and ability to detect predators (Franklin and Garrett 1989). Physical barriers are typically multi-strand fences, including electric fence, which prairie dogs will approach but cannot physically penetrate.

The Forest Service will also carefully evaluate any future proposals for additional pipelines or other livestock water developments near property boundaries. These activities result in soil disturbances and livestock concentrations that attract prairie dogs and typically accelerate the establishment and expansion of prairie dog colonies (Knowles 1986, Licht and Sanchez 1993).

The scope of this proposal is limited to those actions described above. Other issues related to black-tailed prairie dog or black-footed ferret conservation and management in the project area are outside the scope of this proposed action.

Detailed descriptions of the alternatives for implementing the proposed actions are presented in Chapter 2 of this document.

## 1.5 Decision Framework

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This FEIS is not a decision document. Its purpose is to document analyses and disclose direct, indirect, and cumulative effects to the environment from implementing the proposed action and other alternative actions. After allowing the public an opportunity to comment on the alternatives, the Forest Service reassessed the proposed action, other alternatives, and the environmental consequences in order to make the following decisions:

- 1) Determine whether a site-specific implementation plan is needed for reducing prairie dog encroachment from national grasslands and unwanted colonization of adjoining agricultural lands,
- 2) If a site-specific implementation plan is needed, determine when, where, and how management tools would be applied,
- 3) Determine whether an amendment to the LRMP (see Appendix C) is needed for effective prairie dog management and whether the amendment has NFMA significance or non-significance (see Appendix J).

These decisions address both programmatic and site-specific project level planning. The primary purpose of the implementation plan, identified in items 1 and 2 above, is to



provide site-specific environmental analysis and public disclosure for most future projects involving rodenticide use, regulated prairie dog shooting, and some of the non-lethal management tools. Item 3 includes revisions to some of the programmatic direction in the LRMP that relate to black-tailed prairie dogs.

## 1.6 Public Involvement

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A Notice of Intent (NOI) to prepare a DEIS was published in the Federal Register on November 1, 2004. On November 5, 2004, letters were sent to interested parties informing them of the NOI and the 30-day comment period (see Chapter 4, 4.2, Distribution List). Since then, Forest Service officials have met or contacted various individuals, groups, tribes, state agencies, local agencies, and other federal agencies with an interest in prairie dog conservation and management on NFS lands. This includes officials from USDA Animal and Plant Health Inspection Service and the State of South Dakota, both cooperating agencies as indicated in the Federal Register in a December 10, 2004, correction to the earlier Notice of Intent. The State of Nebraska elected not to formally participate as a “cooperating agency” but still has the opportunity to fully participate and provide recommendations and comments.

Another 45-day comment period followed the Notice of Availability (NOA) for the DEIS. The NOA was published in the March 4, 2005, Federal Register, and letters to interested parties informing them of the DEIS and comment period were mailed the same day.

The Forest Service has a long history and considerable experience in prairie dog conservation and management on national grasslands and forests in South Dakota and Nebraska. This includes working with many interested individuals, conservation and industry organizations, landowner associations, tribes and government agencies. As a result, the issues associated with this proposed action are well understood and documented. In addition, the recent revision of the LRMP provided another opportunity for public involvement and for the agency to listen, document and consider public, tribal and agency comments relating to prairie dog conservation and management. Forest Service officials, including members of the FEIS interdisciplinary team, have considered this information in the development and evaluation of the proposed actions and alternatives.

The States of South Dakota and Nebraska recently completed public involvement programs addressing prairie dog conservation and management across each state. Comments from both efforts have been analyzed and documented, and Forest Service officials have also reviewed this information to better understand the issues, from a statewide perspective. The Nebraska and South Dakota public involvement information is available for review at the Forest Supervisor’s Office in Chadron, Nebraska.

## 1.7 Issues

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Key issues related to the proposed action identified through public and agency comments include:

- Unwanted prairie dog colonization on adjoining private or tribal lands and effects on landowners and their property,

- Importance of prairie dogs and these public lands, especially the Conata Basin Black-footed Ferret Reintroduction Area, to the recovery of the endangered black-footed ferret and to the partners in the recovery program,
- Prairie dog shooting in designated black-footed ferret habitat,
- Prairie dog colonies as habitat for grassland wildlife and biodiversity conservation,
- Humane treatment of prairie dogs and associated wildlife,
- Costs and effectiveness of prairie dog management on public and private lands,
- Soil, water, livestock forage and prairie dog relationships,
- Environmental and public health and safety risks,
- Economic effects on ranchers and local economic stability.

Some of these issues do not need further evaluation because there are already regulatory and policy requirements that address them. For example, environmental and public health and safety issues associated with rodenticide use can be remedied by ensuring that pesticide label instructions and Forest Service manual policy and procedures for pesticide use (FSM 2150) are followed during storage, transportation and application of rodenticide. Humane treatment issues can be addressed by meeting provisions of the Animal Welfare Act when prairie dogs are live-trapped. Other issues that were: 1) outside the scope of the proposed action or not relevant to the decision to be made; 2) already addressed and evaluated in the LRMP; or 3) conjectural and not supported by scientific or factual evidence are not addressed in this FEIS.

The following indicators will be used to help address most of the key issues identified above:

- Acreage and distribution of active prairie dog colonies,
- Acres of rodenticide use,
- Miles of vegetation management fencing,
- Animal unit months of permitted livestock grazing,
- Biological determinations for black-footed ferrets and other species at risk,
- Habitat for management indicator species,
- Watershed attributes,
- Implementation costs.

There were numerous comments that focused on the issue of financial incentives for adjoining landowners. The Forest Service may be able to identify or facilitate partnerships between willing landowners and other third parties where financial incentives or other innovative solutions can be explored. However, it is impossible at this time to reasonably predict the interest or evaluate the potential effectiveness of third party solutions.



## 1.8 Other Related Efforts

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Landownership adjustments to better consolidate national grassland parcels are very effective long-term solutions to prairie dog boundary conflicts at some locations. These types of actions are ongoing and require separate environmental analyses and public disclosure processes.

Periodic annual rest or light livestock grazing intensities could be used in selected locations as vegetation management tools to help regulate and manage prairie dog populations. These management tools increase the height and density of grassland vegetation around colonies and decrease the amount of soil disturbance, resulting in conditions less suitable for prairie dogs. Long-term modifications to livestock grazing strategies are generally accomplished through a grazing allotment management planning process that requires separate environmental analyses and public disclosure. Annual temporary adjustments in livestock grazing primarily in response to low precipitation periods (drought) conditions usually do not require additional environmental analyses and public disclosure.

The national black-footed ferret recovery program involves a large number of partners that have and continue to contribute substantial financial, operational and professional support to the successful captive breeding of ferrets and the Conata Basin ferret reintroduction program.

Recent drought conditions in Nebraska and South Dakota have greatly accelerated prairie dog colony expansion and establishment. This has resulted in increased complaints from many neighboring landowners about prairie dog colonies encroaching onto their lands from national grasslands. In response to these complaints and the severe drought conditions in 2004, prairie dog rodenticide was recently applied to approximately 6,800 acres of colonies along property boundaries on the Buffalo Gap National Grassland. This was implemented through a cooperative program with State of South Dakota and USDA Animal and Plant Health Inspection Service.

## CHAPTER 2. DESCRIPTIONS AND COMPARISON OF THE ALTERNATIVES

### 2.1 Introduction

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This chapter describes and compares three alternatives, a no action and two action alternatives for the proposed action relating to black-tailed prairie dog conservation and management. The two action alternatives require an LRMP amendment. The focus of the alternatives is prairie dog management along boundaries to reduce unwanted prairie dog colonization of adjoining agricultural lands. This chapter includes a summary comparison that defines differences between alternatives, providing a clear basis for determining alternative preference by the decision maker and public.

### 2.2 Alternatives Considered in Detail

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Three alternatives were developed in response to regulatory requirements and issues raised by the public and other government agencies.

#### 2.2.1 Alternative 1 - No Action (Current LRMP Direction)

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Limited Rodenticide Use

**Conservation.** Current LRMP direction for prairie dog conservation is unchanged and implemented as funding, staffing and priorities allow. Conservation activities underway include but are not limited to:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion while reducing boundary management conflicts,
- Expansion of the prairie dog colony complex (Management Area 3.63) near Smithwick, South Dakota, as potential habitat for future black-footed ferret reintroductions,
- Establishment and maintenance of designated prairie dog colony complexes (conservation focus areas) on the Fort Pierre and Oglala National Grasslands,
- Live-trapping and relocation of prairie dogs for black-footed ferret recovery program and for accelerating prairie dog colony expansion in selected areas.

In addition to the conservation activities just listed, prairie dog shooting closures identified in the LRMP for ferret reintroduction habitat would be implemented in the Smithwick ferret habitat area (Management Area 3.63) in 2005.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools (and limited use of rodenticide) is implemented as appropriate and where it would be most effective over the long-term.

- Non-lethal methods such as vegetation management through livestock grazing modifications are implemented in selected sites to help regulate and manage prairie dog populations. Non-lethal methods are used along property boundaries to reduce colony establishment and expansion rates in these areas. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, to create visual barriers along property boundaries. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If suitable destination sites are available, live-trapping may be used in a few selected colonies along boundaries to remove and relocate prairie dogs. Identification and evaluation of opportunities for landownership adjustment to reduce prairie dog management conflicts with adjoining landowners continues as prescribed in the LRMP.
- Limited use of rodenticide is prescribed and implemented for public health and safety risks and damage to facilities, such as rural residences. Although it has never been confirmed in the project area, a plague epizootic near a rural residence would certainly be considered a health and safety risk. The abundance of rattlesnakes in prairie dog colonies is considered a health and safety issue when colonies expand into and around farm and ranch headquarters and rural residences. Recreational prairie dog shooting near farm and ranch headquarters is also a safety issue. All decisions regarding rodenticide use, including the amount and extent of rodenticide use, on the national grasslands in response to public health and safety risks would be made by the Forest Service after on-site evaluations.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. The plan describes the specific conditions when lethal and non-lethal management tools could be applied on the ground without additional public disclosure or environmental analysis.

**LRMP Amendment.** There is no LRMP amendment needed under this alternative. As directed in the LRMP (H-2 Guideline in Chapter 1 of the LRMP), state prairie dog plans are to be consulted for additional guidance on how to respond to unwanted colonization



of adjoining agricultural lands. The recently released South Dakota Prairie Dog Conservation and Management Plan calls for rodenticide use along national grassland boundaries to reduce unwanted colonization of adjoining lands. However, under this alternative, the Forest Service does not authorize additional rodenticide use and instead continues to focus on non-lethal methods of prairie dog population regulation with lethal methods only used primarily in response to public health and safety risks.

### 2.2.2 Alternative 2

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use Along Property Boundaries (1.0 Mile Boundary Management Zone on all National Grassland Units).

**Conservation.** Some of the LRMP direction for prairie dog conservation continues to be implemented as funding, staffing and priorities allow. This direction includes but is not limited to:

- Maintain the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. However, successful establishment of a prairie dog colony complex under this alternative that is large enough to support a ferret reintroduction in this area would likely require conservation agreements for additional active colony acreage on adjoining lands.

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide use in boundary management zones is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment occurs when a prairie dog colony on national grasslands expands to a point where unwanted colonization of adjoining land occurs and is unwanted by the landowner and/or manager. This definition is taken from the South Dakota Black-tailed Prairie Dog Conservation and Management Plan.

- Non-lethal tools under this alternative also include landownership adjustment, financial incentives and conservation easements. On-site evaluations of complaint areas identifying opportunities for landownership adjustment with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the

annual LRMP Monitoring and Evaluation Report. Financial incentives and conservation easements would involve government agencies and private organizations working with willing landowners to find ways of conserving prairie dogs on their lands and national grasslands.

- Non-lethal methods would be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of the rodenticide. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual barriers. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used will also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure would be conducted as appropriate. Use of physical prairie dog barriers or live-trapping and relocation of prairie dogs may also be used in a few selected areas.
- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in selected colonies in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help reduce prairie dog populations along boundaries to reduce unwanted colonization of adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, acceptable ammunition, and season and shooting hours in selected colonies. It also includes the necessary enforcement and oversight by the Forest Service. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps reduce prairie dog populations in both interior and boundary colonies on national grasslands.
- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. Forest Service defers decisions on prairie dog shooting

restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states.

- Rodenticide use could extend a maximum of one mile into national grasslands from private or tribal property boundaries. This does not apply to boundaries along state school lands, Badlands National Park and other federal lands. All rodenticide use on the national grasslands would be in response to valid complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries and encroachment from a national grassland colony. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The appropriate response to each complaint involving a national grassland colony would be determined by the Forest Service after on-site evaluations and coordination with landowners and South Dakota Departments of Agriculture and Game, Fish and Parks. In Nebraska, on-site evaluations would likely be conducted with landowners and officials from the Game and Parks Commission and USDA Animal and Plant Health Inspection Service.

Decisions not to use rodenticide in response to some complaints may occur where encroachment is not evident or for a variety of other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.
- Additional criteria apply on some areas before rodenticide use would be authorized. Rodenticide use in the Conata Basin black-footed ferret reintroduction area could only extend to a mile if minimum black-footed ferret population thresholds continue to be met. These thresholds, based on current information, indicate that between 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005). If the minimum thresholds are not being met, rodenticide use would not occur or would be limited to less than a mile from adjoining lands. The black-footed ferret minimum threshold is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. The plan describes the specific conditions when lethal and



non-lethal management tools could be applied on the ground without additional public disclosure or environmental analysis.

**LRMP Amendment.** A LRMP amendment is needed to support implementation of this alternative and is presented in Appendix C. The main revision to this amendment would respond to H-2 Guideline in Chapter 1 of the LRMP that requires state prairie dog plans to be consulted for additional guidance on responding to unwanted prairie dog colonization on adjoining agricultural lands. The LRMP would also be amended by deleting the objective and guidelines (Chapter 2, LRMP) that prescribe establishment of a new colony complex on the Oglala National Grassland and northeast portion of the Fort Pierre National Grassland. Black-tailed prairie dogs would also be dropped as a management indicator species for both national grasslands. A total of two objectives, two standards, and one guideline would be deleted and not replaced under this alternative. A total of five standards, one guideline, and one desired condition statement would be revised under this alternative.

The LRMP amendment would also revise the boundary of the Conata Basin black-footed ferret reintroduction area. This revision is needed to remove 5,130 acres of land that is isolated from the core ferret habitat in Conata Basin and has been determined to be unsuitable for black-footed ferrets (Livieri and Perry 2005).

### 2.2.3 Alternative 3 (Preferred)

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use along Property Boundaries (0.25 Mile Boundary Management Zone – Fort Pierre National Grassland; and 0.5 Mile Boundary Management Zone – Oglala and Buffalo Gap National Grasslands).

**Conservation.** Most LRMP direction for prairie dog conservation is implemented as funding, staffing and priorities allow. Modifications are made to some conservation measures prescribed in the LRMP including the shooting and rodenticide prohibitions in black-footed ferret reintroduction habitat (Management Areas 3.63).

Priority conservation activities implemented under this alternative include:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction habitat (Management Area 3.63),
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion,
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Establishment and intensive management of prairie dog colony complexes on Fort Pierre and Oglala National Grasslands,
- Third party solutions with willing landowners.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. Under this action, successful establishment of a prairie dog colony complex that is large enough to support a ferret reintroduction in this area may take more than 10 years or may require conservation agreements for additional active colony acreage on adjoining lands.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide use in boundary management zones is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment is defined as a national grassland colony that extends across a private or tribal property boundary or would likely cross a property boundary within 1 to 2 years. By stopping colonies just before they encroach on an adjoining landowner, the number of chronic problem areas likely to develop and the amount of rodenticide and other management actions requested and needed in the future should be substantially reduced.

More detailed information on how prairie dog management tools would be used in boundary management zones follows:

- Non-lethal management tools include landownership adjustment and third party solutions. On-site evaluations of complaint areas identifying opportunities for landownership adjustment and third party solutions with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat and the designated prairie dog colony complexes on the Fort Pierre and Oglala National Grasslands. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the annual LRMP Monitoring and Evaluation Report. Third party solutions involve other government agencies or private organizations that provide innovative solutions to help conserve prairie dogs on their lands and national grasslands. These solutions include but are not limited to financial incentives, conservation agreements and easements with willing landowners, and other tools identified in the national black-tailed prairie dog conservation assessment and strategy (Van Pelt 1999).
- Non-lethal methods would also be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of rodenticides. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual (vegetation) barriers.



Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation and drought conditions, for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure may be conducted as appropriate. Use of visual and physical prairie dog barriers may also be used in selected areas.

- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat and designated prairie dog colony complexes.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion (April 5, 1994) by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction, is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help regulate prairie dog populations along boundaries to reduce unwanted impacts on adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, type of ammunition, and season and shooting hours for selected colonies. It also includes the necessary enforcement and oversight. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps regulate prairie dog populations in both interior and boundary colonies on national grasslands. Conata Basin colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.
- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. A Forest Service shooting closure would be implemented if annual increases needed to achieve ferret habitat objectives are not being met. Forest Service defers decisions on prairie dog shooting restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states. Smithwick colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.
- Landownership patterns, forage productivity, and prairie dog distribution are different between the Fort Pierre, Buffalo Gap and Oglala National Grasslands, so guidance on rodenticide use is not consistent across the national grasslands. This

is necessary to balance the need for prairie dog conservation with concerns of adjoining landowners. Boundary management zones on the Buffalo Gap and Oglala National Grasslands where rodenticide and other management tools could be used to reduce unwanted colonization of adjoining lands extend a maximum of 0.5 miles from private or tribal property boundaries into the national grasslands. The boundary management zone on the Fort Pierre National Grassland is set at a lesser width of 0.25 miles (maximum) to avoid elimination of most colonies and due to the limited encroachment problems. Boundary management zones are set up only along private or tribal lands and not along state school lands, Badlands National Park or other federal lands.

- Rodenticide use would occur on the national grasslands to reduce encroachment (as defined) in response to valid complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries or imminent (1 to 2 years) colonization and that a national grassland colony is a significant contributor to the colonization. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The Forest Service would determine the appropriate response to each complaint involving a national grassland colony after an on-site evaluation.

Decisions where rodenticide use would not occur or would be limited to less than specified distances may occur in response to: 1) complaints where encroachment is not evident; 2) in accordance with Appendix E Biological Assessment and the USFWS letter of concurrence; or 3) for other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.
- Unique circumstances involving chronic colony-specific encroachment problems may warrant exceeding the specified distances, but these rare exceptions would only be made if additional environmental analyses were conducted.
  - Rodenticide use in the Conata Basin black-footed ferret reintroduction area could extend beyond the specified distance if minimum black-footed ferret population thresholds continue to be met. The minimum threshold for Conata Basin is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work. These thresholds, based on current information, indicate that between and at a minimum 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005).
  - Rodenticide use on Oglala and Fort Pierre National Grasslands (0.5 and 0.25 mile boundary management zones respectively) could only extend beyond the specified distances if reasonable progress can be demonstrated in establishing the prairie dog colony complexes prescribed in the LRMP

for both areas. Reasonable progress is achieved when long-term trends in active prairie dog colony acreage remain above the 1996–98 colony acreages used in the LRMP FEIS analyses.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

A project-level implementation plan for prairie dog management under this alternative is presented in Appendix B. This plan provides more detailed management direction, including an adaptive management approach for use of a full suite of management tools.

**LRMP Amendment.** A LRMP amendment is needed to support implementation of this alternative and is presented in Appendix C. The main revision to this amendment is simply a response to H-2 Guideline in Chapter 1 of the LRMP that requires state prairie dog plans to be consulted for additional guidance on responding to unwanted prairie dog colonization on adjoining agricultural lands. A total of two standards and one guideline would be deleted and not replaced under this alternative. A total of five standards, one guideline, and one desired condition statement would be revised.

The LRMP amendment would also revise the boundary of the Conata Basin black-footed ferret reintroduction area. This revision is needed to remove 5,130 acres of land that is isolated from the core ferret habitat in Conata Basin and has been determined to be unsuitable for black-footed ferrets (Livieri and Perry 2005).

## 2.2.4 Comparison of Management Tools

Table 2-1 provides a concise summary of prairie dog management tools included under each alternative. With the exception of the modification to the Forest Service shooting closure in Conata Basin, all management tools apply equally to the national grasslands in the project area. The last five tools in the table could be applied to potential complaint areas in the future along the property boundaries of the Samuel R. McKelvie National Forest and Nebraska National Forest, Pine Ridge Ranger District, should prairie dog colonies eventually establish in these areas. They could also be applied to potential future complaints involving prairie dog colonies on the Bessey Ranger District of the Nebraska National Forest.



**Table 2-1. Comparison of management tools by alternative**

Management Tool	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Rodenticide Use to Reduce Public Health and Safety Risks and Damage to Facilities	Yes	Yes	Yes
Rodenticide Use to Reduce Unwanted Colonization on Adjoining Agricultural Lands	No	Yes (1 mile zone)	Yes (0.25 and 0.5 mile zones) <sup>1</sup>
Shooting Closure Modification in Conata Basin	No	Yes	Yes
Landownership Adjustment	Yes	Yes	Yes
Third Party Solutions <sup>2</sup>	Yes	Yes	Emphasized
Vegetation Management Fencing	Yes	Yes	Yes
Other Visual and Physical Barriers	Yes	Yes	Yes
Live-trapping <sup>3</sup>	Designated Areas	Yes	Yes

<sup>1</sup> 0.25 mile wide boundary management zone on Fort Pierre National Grassland and 0.5 mile elsewhere

<sup>2</sup> Third party solutions could involve financial incentives, conservation agreements, conservation easements and other innovative solutions. Only Alternative 3 addresses the opportunity for other additional innovative solutions through third party partnerships.

<sup>3</sup> Limited to black-footed ferret habitat and designated prairie dog colony complexes under Alternative 1 but not restricted to those areas under Alternatives 2 and 3.

The width of the boundary management zones in Alternatives 2 and 3 are based on the assumption that, all other variables being constant, the effectiveness of a zone in reducing unwanted colonization of adjoining agricultural lands increases as the width of the zone increases. This seems to be a reasonably safe assumption. However, it is acknowledged that there is no research information on the comparative effectiveness of zones of a mile or less in reducing unwanted colonization of adjoining lands. Tables 2-2, 2-3, and 2-4 include a summary of conservation activities that would be implemented under each alternative.

## 2.2.5 Conservation Measures Common to All Alternatives

These measures apply to all alternatives:

- 1) Inventory and monitor black-tailed prairie dogs and black-footed ferrets as prescribed in Chapter 4 of the LRMP.
- 2) Avoid all significant fossil and heritage resource sites when conducting any ground-disturbing projects. Before ground disturbing activities, a Forest Service paleontologist and archeologist would be contacted to review the proposed project to determine if any fossil or heritage resource surveys, reports, or actions are needed.

- 3) Prior to ground disturbing activities, a journey-level Forest Service biologist/botanist would be contacted to review the proposed project to determine if any biological surveys, reports, or actions are needed.
- 4) If the predicted range of prairie dog colony acreage listed in Table 3-2 of this document for any national grassland is exceeded, prairie dog management would be revisited. This may involve additional public involvement and environmental analysis.
- 5) If whooping cranes are sighted in an area where rodenticide is being applied, operations will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.
- 6) The U.S. Fish and Wildlife Service will be consulted prior to use of rodenticide or shooting in a national grassland colony in the Conata Basin ferret area that is near private or tribal land and within a mile of black-footed ferret habitat on Badlands National Park.
- 7) Before any on-the-ground management activities (i.e., fencing) occur, review any species at risk timing limitation direction in the LRMP.

Regarding measures 2 and 3 above, new ground disturbances resulting from use of lethal and non-lethal management tools are expected to be minimal. Construction of vegetation management fencing results in minimal soil disturbance.

## **2.3 Alternatives Considered but Eliminated from Detailed Study**

An alternative using only non-lethal prairie dog management methods was suggested. Alternative 1 in this FEIS is essentially non-lethal, except for very limited rodenticide use for public health and safety issues and damage to facilities. Therefore, another non-lethal alternative was not considered.

The Fall River County (South Dakota) Commissioners submitted "The Fall River County Prairie Dog Conservation Act for National Grasslands" and requested that the Forest Service consider the Act as an alternative. The Act specified a one-mile prairie dog free zone and limitations on prairie dog colony acreages on national grasslands in any South Dakota county. The recommendations and comments from the Fall River County Commissioners were received after the Notice of Intent comment period and too late to be incorporated into the DEIS analyses. However, their recommended alternative was eliminated from detailed study because the proposal would transfer authority for managing NFS lands to Fall River County. That would not be a legal or viable alternative.

USDA Animal and Plant Health Inspection Service (APHIS) also suggested additional alternatives. This input from APHIS was received after the Notice of Intent comment period and too late to be incorporated into the DEIS. However, their recommended

alternatives were considered during the development of the FEIS. One of the alternatives would expand the possible use of lethal control (rodenticide) to all national forest system lands in Nebraska, rather than limiting it to only the Oglala National Grassland. Although not considered as a separate alternative, provision for possible rodenticide use in the future on the additional areas in Nebraska was added to Alternatives 2 and 3. Another suggested alternative by APHIS was to address and evaluate management of prairie dogs on adjoining lands. This alternative was not considered for detailed analysis because the scope of the proposed action had clearly been established from the onset of the environmental impact statement process to be limited to prairie dog management on national forest system lands only.

## **2.4 Comparison of Effects**

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Tables 2-2, 2-3, 2-4, and 2-5 provide a concise summary of the effects of implementing each alternative on some of the key issues identified in Section 1.7 of this document. Summary tables are not provided for Nebraska National Forest, Bessey Ranger District, because no additional prairie dog conservation or management activities beyond those already existing in the revised LRMP occur, without any additional environmental analysis and public disclosure, under any of the alternatives. Summary tables are also not presented for the Nebraska National Forest, Pine Ridge Ranger District, or Samuel R. McKelvie National Forest because prairie dog colonies do not occur on those areas.



**Table 2-2. Effects summary for alternatives and several key issues on Buffalo Gap National Grassland**

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Black-footed Ferret Recovery (Conata Basin Only)	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	20,310	15,140	19,290
	Predicted Acreage of Active Colonies By 2012 <sup>1</sup>	34,000 to 65,000 <sup>1</sup>	17,000 to 20,000 <sup>1</sup>	23,000 to 32,000 <sup>1</sup>
	Minimum Habitat Threshold Exceeded	Yes	Yes	Yes
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	26,010	16,360	22,360
	Predicted Acreage of Active Colonies By 2012 <sup>1</sup>	48,000 to 92,000 <sup>1</sup>	18,000 to 22,000 <sup>1</sup>	27,000 to 38,000 <sup>1</sup>
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
Unwanted Colonization of Adjoining Agricultural Land	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met	Yes	Yes	Yes
	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
	Width of Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile	Up to 0.5 Mile
Public Health & Safety and Damage to Facilities	Authorized Rodenticide Use	Yes	Yes	Yes
Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing <sup>2</sup>	Animal Unit Months (AUM)	3,000 to 6,000	1,000 to 2,000	1,000 to 2,000

<sup>1</sup> These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.

<sup>2</sup> Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.

**Table 2-3. Effects summary for alternatives and several major issues on Fort Pierre National Grassland**

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	1,260	0	870
	Predicted Acreage of Active Colonies By 2012 <sup>1</sup>	1,900 to 2,700 <sup>1</sup>	0 <sup>1</sup>	1,100 to 1,400 <sup>1</sup>
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met, Including Establishment of a Colony Complex	Yes	No	Likely
Unwanted Colonization of Adjoining Agricultural Lands	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
	Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile Encroachment Colonies Only	Up to 0.25 Mile Encroachment Colonies Only
	Authorized Rodenticide Use	Yes	Yes	Yes
	Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing <sup>3</sup>	375 to 750	200 to 375	200 to 375

<sup>1</sup> These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.

<sup>2</sup> Without additional colonies on adjoining lands being added to the complex through conservation agreements, it may take more than 10 years to develop a complex meeting minimum criteria.

<sup>3</sup> Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.

Table 2-4. Effects summary for alternatives and several major issues on Oglala National Grassland

Issue	Indicator(s)	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Wildlife and Biodiversity Conservation	Acreage of Active Colonies Currently Outside Boundary Management Zone (Fall 2004)	2,220	80	1,170
	Predicted Acreage of Active Colonies By 2012 <sup>1</sup>	3,300 to 6,800 <sup>1</sup>	<100 <sup>1</sup>	1,400 to 1,800 <sup>1</sup>
	Species at Risk Biological Determinations	No Adverse Determinations	Adverse Effects Possible	No Adverse Determinations
	Black-tailed Prairie Dog (Management Indicator Species) Objectives Met, Including Establishment of a Colony Complex	Yes	No	Yes
	Compatible With Other Management Indicator Species Objectives	Yes	Yes	Yes
Unwanted Colonization of Adjoining Agricultural Lands	Boundary Management Zone	No Boundary Management Zone	Up to 1 Mile Encroachment Colonies Only	Up to 0.5 Mile Encroachment Colonies Only
Public Health & Safety and Damage to Facilities	Authorized Rodenticide Use	Yes	Yes	Yes
Potential Reduction of Livestock Grazing (AUMs) Due to Temporary Vegetation Management Fencing <sup>2</sup>	Animal Unit Months (AUM)	250 to 500	125 to 250	125 to 250

<sup>1</sup> These figures represent effects analyses (predicted future colony acreages) for each alternative and are not management objectives.<sup>2</sup> Dependent on width (0.25 to 0.5 mile) of fenced areas within boundary management zones.



Table 2-5. Summary of annual implementation costs (2005-2012).

Management Tool <sup>1</sup>	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Inventory and Monitoring	\$50,000	\$55,000	\$50,000
Rodenticide	\$6,000	\$164,000	\$126,000
Management of Limited and Regulated Prairie Dog Shooting (black-footed ferret habitat only)	Not Applicable	\$50,000	\$50,000
Vegetation Management Fencing <sup>2</sup>	\$175,000	\$62,500	\$62,500

<sup>1</sup> Land adjustment and third party solutions costs are highly variable and are not displayed. Possible costs associated with live-trapping and relocating prairie dogs and with construction of physical barrier fencing are also not included. They are optional tools to consider at selected sites, but their use will likely be minimal due to high costs and/or questionable effectiveness.

<sup>2</sup> Fencing costs will occur only during the first 2 to 3 years of implementation.

## CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### 3.1 Introduction

This chapter summarizes the physical, biological, social, and economic environment of the project area and effects of implementing each alternative. Additional information on the affected environment in the project area is presented in Chapter 3 of the Final EIS (LRMP FEIS) for the revised LRMP (USDA Forest Service 2002 at [www.fs.fed.us/ngp](http://www.fs.fed.us/ngp)). Major laws and regulations relating to protection, conservation and management of the resources and land uses that could be affected by one or more of the alternatives in this FEIS can be reviewed in the LRMP FEIS.

Effects are categorized as direct, indirect or cumulative for those resources and land uses that may be affected by the actions prescribed in the alternatives. Many of the effects of implementing Alternative 1 (no action) have already been disclosed in the LRMP FEIS. Direct environmental effects are those occurring at the same time and place as an action. Indirect environmental effects occur later in time or are spatially removed from the action. Cumulative effects are impacts on the environment that result from the proposed action(s) when added to other past, present, and reasonably foreseeable related future actions, regardless of what agency or person undertakes such actions. Cumulative impacts could result from individually minor but collectively significant actions taking place over a period of time (50 CFR 1508.7). As defined by ESA, cumulative effects are those resulting from future state and private activities that are reasonably certain to occur. Future federal actions that have been through consultation are included in the environmental baseline and future federal actions will be consulted on separately. Therefore, they do not need to be considered in cumulative effects analysis. Most of the cumulative effects associated with this proposed action are disclosed in Section 3.14 of this document and in the Biological Assessment and Evaluation (Appendix E of the DEIS and FEIS).

Most effects are described in terms of the indicators identified in Chapter 1 of this document, and only those resources or activities affected by implementation of one or more alternatives are addressed in detail. Most of the analyses supporting this FEIS were used to predict effects out to the year 2012 and are based on changes in prairie dog populations, primarily in response to rodenticide use and other management tools. The year 2012 reflects a 10-year projection from 2002 when the LRMP ROD was signed. It needs to be highlighted that analyses of Alternatives 2 and 3 assume all colonies within boundary management zones are eventually treated with rodenticide. In reality, the majority of these colonies would be treated with rodenticide but some would not because they are not encroaching or about to encroach on adjoining lands. Therefore, predictions of annual rodenticide use should be considered maximums, while the predicted prairie dog colony acreages by 2012 should be considered minimums.

Basic information on past, current and predicted prairie dog populations in the project area is presented in Tables 3-1 and 3-2. Distribution maps of current (Fall 2004) prairie dog colonies are provided in Appendix A. A prairie dog colony growth (expansion) model was used to predict future colony acreages (Table 3-2). This model has performed reasonably

well in the past and takes into consideration differences in annual expansion rates of existing colonies during low precipitation years (drought) versus years of normal or above normal precipitation. The colony growth model also factors in establishment of new colonies over time. Minor refinements were made in the model to further improve its performance in support of analyses conducted as part of this FEIS. It's important to point out that for Alternatives 2 and 3, the predicted prairie dog colony acreages displayed in Table 3-2 are acreages expected to occur in the interior areas of the national grasslands and forests away from property boundaries. Under these two alternatives, all prairie dog colonies within the boundary management zones are assumed to be treated with rodenticides for analysis purposes. As stated above, the majority of these colonies would be treated with rodenticide but some colonies would not because they are not encroaching on to other lands due to soils, terrain, and natural barriers, etc. Table 3-2 also provides predictions of the annual rodenticide use under each alternative. A rodenticide use model was used to generate these predictions. This model incorporates both the acres of initial and follow-up rodenticide use, based on a return interval with rodenticide once every 3 years after initial rodenticide application and a 20 percent loss in colony acreage for each retreatment after the first two rodenticide applications. Both the colony growth and rodenticide use models are maintained as part of the project record in the Supervisor's Office in Chadron, Nebraska.



Table 3-1. Black-tailed prairie dog colonies in the project area

Area	Active Colony Acreage 1996-97 <sup>1</sup>	Active Colony Acreage 2002 <sup>2</sup>	Active Colony Acreage 2004 <sup>3</sup>	Number Of Active Colonies 2004	Average Colony Acreage (range) 2004
Buffalo Gap N.G.	13,280	17,690	26,030 <sup>4</sup>	309	84 (<1 to 4,060)
Conata Basin Ferret Habitat	10,890	12,560	20,310 <sup>4</sup>	112	181 (<1 to 4,060)
Smithwick Ferret Habitat	300	670	990	18	55 (<1 to 334)
Fort Pierre N.G.	720	1,110	1,340	53	25 (<1 to 313)
Timber/Sand Creek Colony Complex	340	550	850	15	57 (<1 to 313)
Ogala N.G. and Colony Complex	740	1,620	2,220	26	85 (<1 to 1,100)
Nebraska N.F. (Bessey)	70	80	90	9	10 (1 to 25)
Combined	14,810	20,500	29,680	397	75 (<1 to 4,060)

<sup>1</sup> Colony acreage used in LRMP FEIS analyses

<sup>2</sup> Colony acreage when Record of Decision was signed for LRMP

<sup>3</sup> Global positioning system (GPS) survey information

<sup>4</sup> Does not include 6,780 acres of colonies treated with rodenticide in 2004

**Table 3-2. Effects of alternatives on black-tailed prairie dog colonies and their management**

Alternative And National Grassland/Forest	Current Colony Acreage Subject to Possible Rodenticide Use <sup>1</sup>	Predicted Annual Rodenticide Use 2005-2012 (acres)	Current Active Colony Acreage <sup>3</sup> (Rodenticide Unlikely)	Current Number of Active Colonies / Average Colony Size <sup>3</sup> (Rodenticide Unlikely)	Predicted Colony Acreage in 2012 <sup>4</sup>
<b>Alternative 1 (No Action)</b>					
Buffalo Gap N.G.	480	<100 <sup>2</sup>	26,010 <sup>5</sup>	308 colonies / 84 acres	48,000 to 92,000 <sup>6</sup>
Conata Basin Ferret Habitat	200	<100 <sup>2</sup>	20,310 <sup>5</sup>	112 colonies / 181 acres	34,000 to 65,000 <sup>6</sup>
Smithwick Ferret Habitat	0	0	990	18 colonies / 55 acres	3,000 to 5,900
Fort Pierre N.G.	80	<100	1,260	49 colonies / 26 acres	1,900 to 2,700
Colony Complex	80	<100	770	11 colonies / 69 acres	1,100 to 1,700
Ogala N.G. and Colony Complex	0	<100	2,220	26 colonies / 85 acres	3,300 to 6,800
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	560	<300	29,580	392 colonies / 75 acres	53,000 to 102,000 <sup>6</sup>
<b>Alternative 2</b>					
Buffalo Gap N.G.	16,450	8,900 to 10,500 <sup>2</sup>	16,360	117 colonies / 140 acres	18,000 to 22,000
Conata Basin Ferret Habitat	8,410	4,700 to 6,200 <sup>2</sup>	15,140	82 colonies / 185 acres	17,000 to 20,000
Smithwick Ferret Habitat	460	230 to 290	530	8 colonies / 66 acres	700 to 800
Fort Pierre N.G.	1,340	470	0	0	0
Colony Complex	850	300	0	0	0
Ogala N.G. and Colony Complex	2,140	750	80	2 colonies / 40 acres	<100
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	19,930	10,120 to 11,720	16,530	128 colonies / 129 acres	18,000 to 22,000
<b>Alternative 3 (Preferred)</b>					
Buffalo Gap N.G.	10,450	6,800 to 8,700 <sup>2</sup>	22,360	190 colonies / 118 acres	27,000 to 38,000
Conata Basin Ferret Habitat	4,260	3,300 to 6,200 <sup>2</sup>	19,290	101 colonies / 191 acres	23,000 to 32,000
Smithwick Ferret Habitat	210	160 to 290	780	14 colonies / 56 acres	1,300 to 1,800
Fort Pierre N.G.	470	120 to 210	870	36 colonies / 24 acres	1,100 to 1,400
Colony Complex	300	90 to 140	550	10 colonies / 52 acres	700 to 900
Ogala N.G. and Colony Complex	1,050	410 to 510	1,170	7 colonies / 167 acres	1,400 to 1,800
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	11,970	7,330 to 9,420	24,490	242 colonies / 101 acres	30,000 to 41,000

See footnotes on following page.

- <sup>1</sup> Based on GPS surveys in 2004 and includes colonies that may be a risk to health and safety or facilities (all alternatives) or located in boundary management zones (Alternatives 2 and 3); includes 6,780 acres of colonies treated with rodenticide in 2004
- <sup>2</sup> Includes some or all of the colonies treated with rodenticide on the Buffalo Gap National Grassland in 2004
- <sup>3</sup> Based on GPS surveys in 2004; includes colonies that are not in boundary management zones or not currently a risk to health and safety or infrastructure
- <sup>4</sup> Projections for Alternatives 2 and 3 assume that all colonies within boundary management zones would be treated with rodenticide; low end of each range reflects predicted colony acreages if normal or above normal precipitation patterns prevail through 2012 and the upper end of each range reflects predicted acreages if drought prevails over the next several years; these acreages only reflect predicted alternative effects and should not be viewed as target acreages or management objectives
- <sup>5</sup> Does not include those colonies treated in 2004 because of unwanted colonization of adjoining agricultural lands (6,320 acres); prairie dog populations in these colonies are allowed to recover (re-populate) under Alternative 1; under Alternative 1, only those colonies that are potential risks to health and safety or facilities are subject to possible rodenticide use
- <sup>6</sup> Does not include colonies treated with rodenticide in 2004; at the upper end of the range, further colony expansion was limited by available habitat (65,000 acres) in Conata Basin; the likelihood of prairie dog colony acreage ever reaching the upper end of the predicted range is low due to anticipated landowner intolerance and an insufficient amount of preferred habitat in some areas

## 3.2 Air Resources

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### 3.2.1 Affected Environment

The project area occurs in four designated airsheds:

- 1) North Plains (Fort Pierre and Buffalo Gap National Grasslands - East Half),
- 2) South Plains (Samuel R. McKelvie National Forest and Nebraska National Forest Bessey Ranger District),
- 3) Thunder Basin (Oglala and Buffalo Gap National Grasslands – West Half),
- 4) Wheatland (Nebraska National Forest – Pine Ridge Ranger District).

Each airshed is discussed in more detail in Chapter 3 of the LRMP FEIS. Criteria to determine airshed boundaries include topography, upper-level air flow, and political/civil boundaries where physical boundaries are not apparent. Airsheds are not fixed boundaries like watersheds but none-the-less, serve as useful mechanisms for grouping management areas likely to have similar air quality. Each airshed has the potential to be affected by pollution sources and management activities both in and outside airshed boundaries.

### 3.2.2 Environmental Consequences

A direct effect of prairie dog burrowing activities is exposure of recently excavated soils and bare mounds to wind erosion, resulting in blowing soils and atmospheric dust. A potential indirect effect of long-term prairie dog foraging and clipping, in combination with permitted livestock grazing, is reduced vegetative cover and increased wind erosion, also resulting in blowing soil and atmospheric dust.

Currently, air quality standards are being met in all airsheds except the Thunder Basin airshed where there is one non-attainment area associated with oil and gas development in Montana and Wyoming (USDA Forest Service 2001). Portions of the Buffalo Gap and Oglala National Grasslands are in this airshed, but the non-attainment area is further west.



It is important to point out that provisions of the Clean Air Act relate to human-caused air pollution. As native wildlife and part of the natural environment, black-tailed prairie dogs were not considered air pollution sources in the LRMP FEIS. It is acknowledged in the LRMP FEIS that, at a more local level, wind erosion may be accelerated on some prairie dog colonies, contributing to atmospheric dust. However, given the relatively small acreages of prairie dog colonies in each airshed, it is highly unlikely that prairie dog colonies are a significant air quality factor in any airshed within the project area. It is also highly unlikely that prairie dog colonies would become a significant air quality factor within the life of this project under any of the alternatives. Highest rates of soil erosion (wind and water) in the northern plains region are attributed to cultivated croplands (USDA NRCS 1996). Also, there appears to be no published or unpublished references documenting and quantifying comparative wind (or water) erosion rates on and off prairie dog colonies. For the reasons identified above, no further analyses were conducted on the direct, indirect, or cumulative effects of the alternatives on air quality.

### **3.3 Soil and Water Resources**

#### **3.3.1 Affected Environment**

Black-tailed prairie dog colonies are found on a variety of soils (Clippinger 1989, Reading and Matchett 1997, Reid 1954), but prairie dogs prefer deep and moderately well to well-drained soils on gentle slopes. Preferred soils are deep silty, clayey or loamy, but colonies will expand into less desirable soils that are shallow and/or rocky. They avoid soils that are frequently flooded or excessively sandy and unable to support burrow systems. Prairie dogs also select soils that have been previously disturbed (Knowles 1986, Licht and Sanchez 1993). This includes disturbances commonly associated with past homestead activity, abandoned fields and livestock concentrations (water sources and developments, mineral sites, supplemental feeding sites, oilers, corrals). Prairie dogs in the project area have also selected and colonized rangelands that were pitted or ripped (soil disturbance) in the 1960s and 1970s for livestock forage improvement. Historically, prairie dogs were most likely attracted to areas heavily impacted by bison and other large native herbivores.

Soils in the project area are predominately from sandstone and shale. Much of the area is considered to be moderate well to well drained with moderate to slow infiltration rates. Some soils have high clay content that slows water infiltration rates. The soils in the project area are subject to wind and water erosion. Water erosion rates increase as slopes exceed 5 to 10 percent. The geology of the area is predominately stratified sedimentary claystone, siltstone, mudstone, shale, limestone, and sandstone from the marine and or terrestrial Cretaceous, Tertiary, Pleistocene, and Holocene environments. When erosion incises these soft geologic formations, erosion rates increase dramatically resulting in badlands formations.

Precipitation in the project area comes primarily as rain. Normal precipitation ranges from 15 to 21 inches per year. Precipitation events are typically high intensity storms of short duration resulting in localized flooding. Drought is a common and reoccurring event in the project area. Drought is defined as any year or successive years with 75 percent or less of average annual precipitation, recognizing that seasonal distribution of precipitation also

influences drought severity (Reece et al. 1991). From 1910 through 1980 (71 years), annual precipitation was below average for 37 years, and on seven occasions, at least three consecutive years were below average at the Cottonwood Range Experiment Station east of Wall, South Dakota (Johnson 1981). Eighteen (25 percent) of the 71 years met the drought criterion and during two of those years (1936 and 1939), annual precipitation was approximately 50 percent of average. Information presented by Holechek et al. (2001) indicates that for the period 1944 through 1984, drought occurred in 21 percent of the years on the northern plains.

Watersheds within the project area in South Dakota include tributaries to Bad River, Cheyenne River, Rapid Creek and White River. Watersheds in Nebraska include Hat Creek and its tributaries. Hat Creek is a tributary to White River. Watersheds range in elevation from approximately 1,800 to 4,000 feet. Impaired waterbodies in the project area on the South Dakota 303(d) list (Clean Water Act) include segments of Rapid Creek and Cheyenne, Bad and White Rivers. Each of these waterbodies have dissolved or suspended solids as a basis for their listing, pursuant to the Clean Water Act. There are no waterbodies listed in the Nebraska portion of the project area that exceed dissolved or suspended solids standards.

Natural waterbodies within or near prairie dog colonies consist primarily of a few perennial or intermittent streams and rivers, mostly on the Buffalo Gap National Grassland. Small ponds that have been constructed on the national grasslands for livestock, wildlife and recreation are also commonly found within or near prairie dog colonies. The streams and rivers support native fish species, including some sensitive fish species. Some of the small impoundments support both introduced and native fish species but no "at risk" species.

### 3.3.2 Environmental Consequences

A direct effect of prairie dog burrowing activities is exposure of recently excavated soils and bare mounds to wind and water erosion, resulting in accelerated soil loss. A potential indirect effect of long-term prairie dog foraging and clipping, in combination with permitted livestock grazing, is reduced vegetative cover and increased wind and water erosion, also resulting in accelerated soil loss. However, soils and prairie dog relationships and interactions are poorly studied and understood. This includes the effects of prairie dog colonization on soil development (pedogenesis) and surface erosion. Soil mixing (pedoturbation) from prairie dog burrowing is undoubtedly important in soil development (Carlson and White 1987) but the extent that prairie dogs contribute to soil development relative to soil loss from wind and water surface erosion on prairie dog colonies is unknown. Working on a white-tailed prairie dog colony on the Hutton Lake National Wildlife Refuge in eastern Wyoming, Clark (1970) reported no evidence of increased erosion on the colony and suggested that the benefits from prairie dogs adding organic materials, increasing air and water penetration, and mixing soils might more than offset any accelerated erosion that might occur on a prairie dog colony. Koford, 1958 reported that we do not know enough about prairie dog-soil interactions to adequately assess the comparative effects of prairie dog colonization on soil development and erosion rates. This same lack of comprehensive and quantitative information still appears to exist today.

Acreages of prairie dog colonies in fourth order watersheds in the project area are presented in Table 3-3. This information is presented only for the South Dakota project area because



surveys for prairie dog colonies on other land jurisdictions in Nebraska were not available. The information in these tables demonstrates that prairie dog colonies on national grasslands account for relatively small acreages within 4<sup>th</sup> order watersheds. The main 4<sup>th</sup> order watersheds (HUCs 10140202 and 101402201) containing the larger prairie dog colony complexes in Conata Basin and adjoining Pine Ridge Indian Reservation have approximately 4 percent or less of their land area in prairie dog colonies. National grassland colonies accounted for approximately 1 percent or less of those watersheds. As you go up in the watersheds, prairie dog colonies occupy an increasingly larger percentage of some watersheds. In a sample of ninety five 6<sup>th</sup> order watersheds on the Buffalo Gap and Fort Pierre National Grasslands, ten have more than 4 percent of the watershed in prairie dog colonies and all of those colonies are located in Conata Basin on the Buffalo Gap National Grassland. The highest coverage of prairie dogs in a 6<sup>th</sup> order watershed in Conata Basin is approximately 52 percent, of which 47 percent of the total colony acreage is located on national grassland. Percentages of watersheds occupied by prairie dog colonies on the Oglala National Grassland are probably similar to those on the Fort Pierre and Buffalo Gap National Grasslands, outside Conata Basin.

**Table 3-3. Acreages of black-tailed prairie dog colonies in 4th order watersheds**

Hydrologic Unit Code (HUC)	National Grassland	Watershed Acreage	Total Prairie Dog Colony Acreage (% watershed area)	Total NFS Prairie Dog Colony Acreage (% watershed area)
10120109	Buffalo Gap	1,360,624	17,920 (1.3%)	3,434 (0.3%)
10120111	Buffalo Gap	1,005,712	6,652 (0.7%)	216 (0.0%)
10140101	Fort Pierre	2,857,289	4,585 (0.2%)	942 (0.0%)
10140102	Fort Pierre & Buffalo Gap	2,022,920	4,123 (0.2%)	1,582 (0.1%)
10140104	Fort Pierre	440,710	1,358 (0.3%)	166 (0.0%)
10140201 <sup>2</sup>	Buffalo Gap	2,444,602	100,545 (4.1%)	2,536 (0.1%)
10140202	Buffalo Gap	1,551,165	30,147 (1.9%)	18,315 (1.2%)

<sup>2</sup> Watershed extends into Nebraska.

Soil erosion from all lands, including colonized and uncolonized grasslands, are sources of sedimentation into rivers and streams, but as stated previously, there appears to be no published or unpublished references documenting and quantifying comparative erosion rates on and off prairie dog colonies, making it difficult to quantitatively assess soil and sedimentation rates from prairie dog colonies. Also, the highest rates of soil erosion in the northern plains region are attributed to cultivated croplands (USDA NRCS 1996), and when considering the relative amounts of cultivated cropland versus black-tailed prairie dog colonies across much of the project area (Table 3-4), it seems unlikely that prairie dog colonies are significant sedimentation sources contributing to the impaired watersheds identified above. Another difficulty in quantifying soil erosion rates on and off prairie dog colonies is that vegetation conditions within and between prairie dog colonies are highly variable based on years of colonization (age of colony), concurrent livestock grazing



practices and other variables. This variability would have to be considered to accurately assess soil erosion rates on prairie dog colonies. Table 3-4 also includes the acreage of badlands in each county within the project area. This information is helpful in putting the acreage of prairie dog colonies into perspective with the extent of badlands, a naturally occurring and highly erosive land type. This comparison further suggests that prairie dog colonies are probably not a major sediment contributor to the impaired rivers and streams in the project area. The Watershed Specialist Report presents the same conclusion. This report is maintained in the project record. None-the-less, it is acknowledged that prairie dogs can contribute to soil erosion problems at localized sites, especially during drought.

**Table 3-4. Acreage comparison by county for croplands, badlands, and prairie dog colonies.**

<b>County (State)</b>	<b>County Acreage</b>	<b>Cropland Acreage</b>	<b>Badland Acreage</b>	<b>Prairie Dog Colony Acreage</b>
Custer (SD)	999,399	20,556 (2.1%)	24,620 (2.5%)	13,213 (1.3%)
Fall River (SD)	1,118,821	50,214 (4.5%)	49,375 (4.4%)	9,291 (0.8%)
Jackson (SD)	1,198,001	76,114 (6.3%)	125,639 (10.5%)	11,586 (1.0%)
Pennington (SD)	1,780,988	158,373 (8.9%)	122,970 (6.9%)	36,804 (2.1%)
Jones (SD)	621,830	77,183 (12.4%)	0	2,536 (0.4%)
Lyman (SD)	1,092,219	211,234 (19.3%)	0	5,781 (0.5%)
Stanley (SD)	971,233	66,985 (6.9%)	0	5,813 (0.6%)
Dawes (NE)	897,184	76,007 (8.5%)	52,284 (5.8%)	2,949 (0.3%)
Sioux (NE)	1,324,876	59,368 (4.5%)	29,716 (2.2%)	7,858 (0.6%)

For the reasons identified above, black-tailed prairie dogs were not identified as significant agents of soil and water degradation in the LRMP FEIS and no further detailed analyses were conducted in this FEIS on the direct, indirect or cumulative effects of the alternatives on soil and water resources and the hydrologic function of watersheds. However, a simple alternative comparison of the potential risk of localized areas of accelerated soil erosion, due in part to prairie dogs, was completed. By examining the predicted future acreages of black-tailed prairie dog colonies under each of the alternatives in Table 3-2, it's easy to see that the greatest risk of localized areas of accelerated soil erosion would occur under Alternative 1. Under Alternative 1, a range of 53,000 to 102,000 acres of colonies is predicted by 2012, the largest predicted acreage of any alternative. For Alternative 2, the predicted range in colony acreage by 2012 is 66 to 78 percent less than under Alternative 1. For Alternative 3, the predicted range is 43 to 60 percent less than under Alternative 1. For the purposes of this analysis, the comparative soil erosion risks are assumed to be proportional to the differences in predicted colony acreages between the alternatives.

The amount of potential rodenticide (2% zinc phosphide) use also varies by alternative (Table 3-2). As indicated above, a few prairie dog colonies occur on floodplains along streams and rivers, and most colonies have constructed ponds in or near them, so there is a potential, albeit small, for some exposure of prairie dog rodenticide to natural or constructed aquatic habitats. However, based on a chemical risk assessment by APHIS (1994),

contamination of surface water by zinc phosphide would result in no probably risk to freshwater fish, assuming the rodenticide is applied to label specifications. A similar determination was made in the Biological Assessment and Evaluation (Appendix E). Therefore, no further effects analyses were conducted on potential surface water contamination by the rodenticide under each of the alternatives.

### 3.4 Heritage Resources

#### 3.4.1 Affected Environment

Evidence for human activity within the project area spans the entire chronological sequence of the Great Plains culture area (Table 3-5) (Hannus and Winham 1999, Prentiss and Rosenberg 1996). Paleoindians are typically characterized as big game hunters who occupied large territories, tracking herds and utilizing a communal hunting strategy. Site types are generally kill and butchery localities. In response to significant climatic changes, Plains groups appear to have adapted their subsistence strategies accordingly during the Archaic period. However, evidence for increased utilization of plant and small game resources may be as much a product of differential preservation. Temporally diagnostic projectile point styles change from lanceolate to large side notched types. Site types are generally scatters of chipped stone representing quarry sites or short-term occupation. Hearth features may be present. The Late Prehistoric period is recognized typologically by a technological shift from the atlatl and dart to the bow and arrow; projectile points change from large to small side notched types. Site types are similar to the Archaic period. "Direct or indirect contact with European groups ushered in the Protohistoric period...(with)...the introduction of the horse and the gun" (Hannus and Winham 1999:37). Euro-American settlement in the project area occurred mainly during the homesteading era between the 1880s and 1930s. Site features generally include depressions, foundations and concentrations of historic artifacts. Prairie dog colonies are commonly found in areas with past homesteading activity.

Table 3-5. Approximate chronology for the project area

Cultural Tradition	Time Period
Paleoindian	12,000 – 8000 years before present (BP)
Early Archaic	8000 – 4500 BP
Middle Archaic	4500 – 3500 BP
Late Archaic	3500 – 1500 BP (AD 450)
Late Prehistoric	1500 BP (AD 450) – 400 BP (AD 1550)
Protohistoric	AD 1550 - 1750
Historic	AD 1750 - 1950

Approximately 16 percent (168,893 acres) of the project area has been intensively surveyed for cultural resources and approximately 1150 sites have been recorded. Approximately 60 percent have been identified as prehistoric resources and 40 percent as historic resources. Two sites, the historic Bessey Nursery and the Hudson-Meng Bison Kill Site, are listed on the National Registry of Historic Places (NRHP). Approximately 10 percent have been



evaluated as Eligible to the NRHP, 53 percent are Not Eligible to the NRHP, and 36 percent have not been evaluated against the criteria for eligibility to the NRHP.

All undertakings (as defined in 36 CFR part 800.16[y]) are conducted in accordance with Section 106 of the National Historic Preservation Act, as amended (NHPA). Heritage resources listed on or eligible to the NRHP are avoided during the implementation phase of any new ground disturbing project proposed on the Forest. If a resource cannot be avoided, mitigation measures are applied to resolve any potential adverse effects to the resource.

The present condition of heritage resources on the Forest is on course with the desired condition described in the LRMP (Goal 2b, Heritage Sites, and Standards and Guidelines, section N, Heritage Resources).

If any new and unforeseen ground disturbing activities are proposed as a result of this proposed plan, such as wood post fence construction, the activity would be treated as a separate and distinct undertaking, triggering its own Section 106 process.

### **3.4.2 Environmental Consequences**

A proposed action would be considered significant if it resulted in an “adverse effect” (as defined in 36 CFR part 800.5) to a property that is listed on, eligible for, or potentially eligible for listing on the National Register of Historic Places (NRHP). Potential adverse effects can usually be mitigated through site-specific measures.

Prairie dog management activities in the alternatives have no potential to directly or indirectly affect heritage resources in the project area. None of the tools, including rodenticide use, live trapping, regulated prairie dog shooting, vegetation management, livestock grazing coordination, or landownership adjustment, involve significant new ground disturbing activities. Since the alternatives would not affect heritage resources, it would not change the current condition of heritage resources on the Forest, and it would not move it towards or away from the desired condition as described in the LRMP. For these reasons, no further analyses were conducted on the direct, indirect or cumulative effects of the alternatives on heritage resources in the project area.

## **3.5 Paleontological Resources**

### **3.5.1 Affected Environment**

The paleontological resource within the project area spans a wide realm of depositional environments ranging from deep marine deposits to terrestrial volcanic deposits containing paleosols. However, geologic and paleontologic records span a relatively short time with the oldest exposed unit, the Late Cretaceous Mowry Formation, located on the Fall River Ranger District (west half Buffalo Gap National Grassland) to the youngest unit, Pleistocene deposits which have produced the well-known Hudson-Meng Bison Bone Bed, located on the Oglala National Grassland and the two bull mammoths that locked tusks and died joined together.

Marine geologic units from the Buffalo Gap and Fort Pierre National Grasslands and northern portion of the Oglala National Grassland were deposited from the Late Cretaceous Interior Seaway as shales, siltstones, and limestones. Terrestrial geologic units were



deposited on top of the Cretaceous units from volcanic activity west on these NFS units. Preservation of the paleontological resources in the project area varies from museum quality to very poorly preserved. Vertebrate fossils range from marine reptiles, such as 25 foot mosasaurs and 15 foot fish, to terrestrial mammals such as Brontotheres (three ton rhino-looking animal) to invertebrates such as bivalves, lobsters, ammonites, and snails.

Various partners and fossil permittees have documented 822 paleontological sites in the project area, all since 1991. Five areas are established as Paleontological Special Interest Areas, requiring a permit to collect any fossil. These areas are to protect the resource intact.

### **3.5.2 Environmental Consequences**

All alternatives prescribe mostly non-ground disturbing activities, and new ground disturbance would be minimal. Any new disturbance requires additional environmental analysis and public disclosure. Therefore, paleontological resources are not likely to be negatively impacted under these alternatives, and the activities prescribed under the alternatives are compliant with the paleontological resources direction in the LRMP (Chapter 1 Grassland-wide Direction Section E. Paleontological Resources #3). For these reasons, no further analyses were conducted on the direct, indirect or cumulative effects of the alternatives on paleontological resources in the project area.

## **3.6 Rangeland Resources**

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### **3.6.1 Affected Environment**

Much of the discussion and analysis in this section (3.6.1) and 3.6.2 is based on information from the Rangeland Management Specialist Report. This specialist report is maintained as part of the project record in the Supervisor's Office in Chadron, Nebraska.

There are several dominant ecological sites within the mixed grass prairies of the project area, including clayey, shallow clay, loamy, and thin upland. Each ecological site can support two or more plant communities. Annual herbage production between the different plant communities within an ecological site during years of normal precipitation typically varies from more than 1,400 pounds per acre, where cool season midgrass species dominate, to less than 900 pounds per acre, where warm season shortgrass species are dominant. Heavily grazed and impacted sites, like old prairie dog colonies, commonly support plant communities dominated by annual grasses, half shrubs, forbs, and annual weeds. Noxious weeds, like Canada thistle, may occur in some prairie dog colonies. Herbicides are used annually to reduce the spread of noxious weeds both in and out of prairie dog colonies.

Prairie dog colonies are found on each of the dominant ecological sites, as well as on some of the less extensive ecological sites in the project area. In addition to foraging, prairie dogs also clip vegetation to maintain suitable visibility for predator detection and to maintain a complex social system (Fagerstone and Ramey 1996). Long-term prairie dog colonization promotes shortgrass and annual plant communities (Fagerstone and Ramey 1996) which could include annual invasive species, particularly Canada thistle. Lethal and non-lethal management to reduce or remove selected prairie dog populations' results in a shift towards midgrass perennial plant communities. Drought results in reduced annual plant productivity

and accelerated expansion and establishment of prairie dog colonies. Detailed descriptions of these ecological sites and the different plant communities resulting from a variety of natural and other disturbances are presented in the Rangeland Management Specialist Report maintained in the project record.

The national grasslands are grazed annually by permitted livestock. Historically, livestock grazing has been the predominant use on the national grasslands. Heavy livestock grazing rates were reduced to more moderate levels in 1978 across the Conata Basin to bring grazing in line with carrying capacity and to help regulate and manage prairie dog populations (USDA Forest Service 1978). These stocking adjustments are still in effect, while stocking on most other NFS lands in the project area remain predominately at moderate levels.

Animal unit months (AUMs) of livestock grazing on national grasslands in 2001-2002 and 2004 are listed in Table 3-6. The 2001-2002 data represent grazing levels during periods of normal or near normal precipitation patterns. The 2004 figures represent grazing levels during a drought. Authorized and actual use may vary annually and are typically less than permitted numbers, especially during drought periods. For example, in 2004, actual use was approximately 34 percent below permitted numbers, primarily in response to drought conditions. In addition to the reduced grazing levels, other grazing modifications were also applied during the 2004 drought, including delayed turn-on dates and faster rotations through pastures.

**Table 3-6. Animal unit months (AUMs) of livestock grazing, 2001-2002 and 2004.**

Area	Permitted AUMs	Authorized AUMS 2001-2002 (2004)	Actual AUMs 2001-2002 (2004)
Buffalo Gap N.G.	190,739	185,739 (162,557)	166,993 (116,232)
Fort Pierre N.G.	51,206	50,757 (38,432)	47,923 (37,397)
Oglala N.G.	28,817	27,056 (26,566)	25,070 (23,916)
All Areas Combined	270,762	263,552 (227,555)	239,986 (177,545)

### 3.6.2 Environmental Consequences

Direct/indirect effects include:

- Vegetation loss (standing biomass) from prairie dog foraging and clipping,
- Vegetation gain (standing biomass) following rodenticide application and removal of prairie dogs,
- Shifts in plant communities due to the long-term presence or absence of prairie dogs and other herbivores.
- Changes in annual livestock grazing, including removal of livestock, to facilitate vegetation management fencing as a non-lethal tool for long-term management of prairie dog populations.

This analysis focuses primarily on the environmental consequences of implementing Alternatives 2 and 3. Effects of prairie dog conservation and management on rangeland resources and livestock grazing under Alternative 1 have already been considered in the LRMP FEIS.

### Herbage Production

Herbage is defined as the total aboveground biomass of plants (total vegetation) including shrubs regardless of grazing preference or availability. Under Alternative 1, there are no boundary management zones, but it is estimated that up to 560 acres of colonies could be treated with rodenticide and other non-lethal tools to reduce public health and safety risks (Table 3-2). An eventual increase in annual herbage production would likely occur in these colonies after a prolonged absence of prairie dogs. However, this increase would likely be masked dramatically by a much larger loss of herbage production in those colonies that are not treated with rodenticide and continue to expand and age (Range Management Specialist Report). New colonies would also likely establish over time under this alternative.

Under Alternatives 2 and 3, a maximum of approximately 19,930 and 11,970 acres, respectively, of prairie dog colonies in the boundary management zones may be treated with rodenticide over the next several years (Table 3-2). When these acreages are compared with the expanding acreage of prairie dog colonies in the interior areas of the national grasslands, overall herbage production can be expected to increase under Alternative 2 while a slight decrease from current production levels can be expected under Alternative 3 (Rangeland Management Specialist Report).

### Livestock Grazing

Temporary annual adjustments to reduce or remove livestock grazing in some boundary management zones to help reduce encroachment, especially during droughts, are anticipated. The extent of these potential temporary reductions is displayed in Table 3-7. Direction to adjust livestock grazing as needed during drought is provided in Chapter 1 of the LRMP.

**Table 3-7. Potential annual reductions in animal unit months of livestock grazing due to vegetation management fencing.**

Area	Alternative 1 (No Action)	Alternative 2	Alternative 3 (Preferred)
Buffalo Gap N.G.	3,000 to 6,000	1,000 to 2,000	1,000 to 2,000
Fort Pierre N.G.	375 to 750	200 to 375	200 to 375
Oglala N.G.	250 to 500	125 to 250	125 to 250
All Areas Combined	3,625 to 7,250	1,325 to 2,625	1,325 to 2,625

As discussed above, herbage production would likely increase in colonies treated with rodenticides under the criteria established under each of the alternatives. However, that does not imply that the additional herbage and forage in these areas would be allocated to livestock. Any allocation or reservation of additional forage would be made when grazing allotment management plans are revised and updated, and this involves a separate environmental analysis and public disclosure process. At that time, forage could either be allocated to permitted livestock, prairie dog management, or to meet other LRMP objectives and direction. It is also possible that loss of herbage production in interior areas of the



national grasslands where prairie dog colonies would likely continue to expand and age could offset to varying degrees, production gains made in the areas where prairie dog populations have been reduced or removed.

As discussed above, quantity of livestock forage typically increases in colony areas following prairie dog reductions or removal, depending on the current ecological state and concurrent livestock grazing management. On the other hand, forage quality within these colonies may actually decrease because of reduced live-to-dead material ratios, nitrogen content and digestibility of forage in the absence of prairie dog foraging and clipping (Whicker and Detling 1988). The extent of these changes following prairie dog reductions is dependant on the years of on-site colonization (colony age) and vegetation conditions within a colony. There may be some nutritional advantages for herbivores, including cattle, to have access to prairie dog colonies for grazing. However, it is very difficult to quantify the combined and concurrent effects of changes in forage quantity (availability) and quality on livestock grazing as a result of prairie dog colonization and management.

### **Invasive and Noxious Weeds**

Annual herbicide control of noxious weeds, including locating and spraying new infestations would continue under each alternative. Risks of new infestations showing up are likely proportional to the total prairie dog colony acreage expected under each alternative. As indicated in Table 3-2, the largest expected colony acreage by 2012 occurs under Alternative 1, while Alternatives 2 results in the lowest risk. Alternative 3 represents an intermediate level of risk.

## **3.7 Species at Risk**

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### **3.7.1 Affected Environment**

The species at risk included in this analysis include federally listed threatened and endangered species (Table 3-8) and species designated as sensitive by Region 2 of the Forest Service (Table 3-9). There are no additional candidates or proposed species for federal protection under ESA in the project area at this time. Effects of prairie dog conservation and management on most of these species were initially evaluated as part of the recent LRMP revision process, and these evaluations are documented in Chapter 3 and Appendix H of the LRMP FEIS. However, several new species were recently added to the Forest Service's sensitive species list, and several of these species occur in the project area and are evaluated in this analysis. The federally protected species in the project area that are evaluated in detail in this analysis are identified in Table 3-8. Two federally protected species, American burying beetle and blowout penstemon, were eliminated from further detailed study. Both species are endangered and are found on NFS lands in the Nebraska Sand Hills. Because there is no rodenticide use prescribed under any of the three alternatives for this area, there are no possible effects on American burying beetles. Blowout penstemon was eliminated from further detailed analysis because it occurs on unstable soils in sand blowouts, unsuitable sites for prairie dog colonization.

**Table 3-8. Species federally protected under ESA that may be affected and their known distribution**

Species and Status <sup>1</sup>	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. (Bessey R.D.)
Black-footed Ferret (E)	X <sup>2</sup>	---	---	---
Whooping Crane (E)	X	X	---	X <sup>3</sup>
Bald Eagle (T)	X	X	X	X

<sup>1</sup> E = endangered, T = threatened

<sup>2</sup> Non-essential experimental population

<sup>3</sup> Downstream from Nebraska N.F.

The black-footed ferret population in the Conata Basin/Badlands black-footed ferret reintroduction area on the Buffalo Gap National Grassland and Badlands National Park is listed as a non-essential experimental population under Section 10j of ESA. Under this classification that portion of the population on the national grassland is treated as a “proposed” species for Section 7 consultation purposes under ESA. On the adjoining Badlands National Park, the ferret population is treated like a “threatened” species for consultation purposes. The most recent monitoring during the fall and winter of 2004/2005 resulted in 70 wild-born litters being located on the national grasslands. These surveys indicated a minimum ferret population of 204, including the kits.

Migrating whooping cranes are rarely observed on NFS lands and waters in the project area. Past confirmed sightings have involved a few instances where cranes landed on uplands, presumably to rest and possibly feed, and on another occasion, whooping cranes were observed on the Middle Loup River near the Nebraska National Forest, Bessey Ranger District.

Bald eagles are migrants in the project area and are occasionally observed hunting over prairie dog colonies near the Cheyenne and White Rivers in South Dakota. It is possible that bald eagle nesting could occur in the not-so-distant future in or near the project area.

Sensitive species in the project area that are evaluated in detail in this analysis are listed in Table 3-9. The black-tailed prairie dog is listed as a sensitive species. Other sensitive wildlife species closely associated with prairie dogs in the project area include western burrowing owl and ferruginous hawk. The mountain plover is also commonly associated with prairie dog colonies, but the only confirmed record in recent years occurred during the summer of 2004 when a single bird was observed in Conata Basin. The project area is considered outside their current breeding range. The association between swift fox and black-tailed prairie dog continues to be debated. There’s little doubt that swift fox populations are bolstered when large expansive prairie dog colonies dominate grassland landscapes, but the value of smaller more disjunct prairie dog colonies and complexes to swift fox is uncertain. Some biologists feel as though smaller colonies and complexes may serve as a population sink for swift fox because of increased predation rates by golden eagle and coyote on the smaller prairie dog colonies.

The recently designated sensitive species that are analyzed in detail in this analysis include greater sage grouse, grasshopper sparrow, Brewer’s sparrow, short-eared owl, chestnut-collared longspur, McCown’s longspur, and northern harrier. These species may be seen on prairie dog colonies but none are known to be closely associated with prairie dogs.

**Table 3-9. Sensitive species and their known distribution in the project area**

Species	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. (Bessey R.D.)
Black-tailed Prairie Dog	X	X	X	X
Swift Fox	X	X	X	---
Greater Prairie Chicken	---	X	---	X
Long-billed Curlew	X	X	X	X
Greater Sage Grouse	X	---	---	---
Northern Harrier	X	X	X	X
Ferruginous Hawk	X	X	X	X
Chestnut-collared Longspur	X	X	X	X
McCown's Longspur	---	---	X	---
Short-eared Owl	X	X	X	X
Western Burrowing Owl	X	X	X	X
Mountain Plover	X <sup>1</sup>	---	---	---
Brewer's Sparrow	X	---	---	---
Grasshopper Sparrow	X	X	X	X
Trumpeter Swan	X	---	---	---
Regal Fritillary	X	X	---	X

<sup>1</sup> One recent confirmed incidental sighting

Numerous sensitive species were eliminated from further detailed analysis. For the most part, these are species known or suspected of occurring in the general project area but are not known to occur in or make significant use of prairie dog colonies. Also, some species were eliminated because they are unaffected by prairie dog foraging, burrowing or management activities, including rodenticide use. More detailed explanations of why each species was eliminated from further detailed analysis are provided in the Biological Assessment and Evaluation (Appendix E).

Those species eliminated from further detailed analysis are:

Fringed Myotis	Plains Leopard Frog
Townsend's Big-eared Bat	Ottoe Skipper
American Bittern	Finescale Dace
Black Tern	Northern Redbelly Dace
Loggerhead Shrike	Pearl Dace
Northern Goshawk	Sturgeon Chub
Peregrine Falcon	Plains Minnow
Yellow-billed Cuckoo	Flathead Chub
Northern Leopard Frog	Barr's Milkvetch



Dakota Buckwheat  
Hall's Bulrush  
Lesser Bladderwort  
Lesser Panicked Sedge

Lesser Yellow Lady's Slipper  
Slender Cottongrass  
Spinulose Woodfern  
Yellow Widelip Orchid

### 3.7.2 Environmental Consequences

This section summarizes direct, indirect and cumulative effects of expanded prairie dog rodenticide use and prairie dog shooting on species at risk, including black-tailed prairie dogs. More detailed analyses of effects on species at risk are included in the Biological Assessment and Evaluation (Appendix E in this FEIS and/or Appendix E in the DEIS). Non-lethal methods of prairie dog management were evaluated in the LRMP FEIS. Possible direct effects include:

- Reductions in prairie dog populations (within selected colonies) and distribution,
- Primary and secondary poisoning of wildlife,
- Reduced prey base for black-footed ferrets and other predators.

Possible indirect effects include:

- Change in grassland vegetation structure, burrow availability and habitat suitability for other wildlife species following rodenticide application and prairie dog removal,
- Change in grassland structure, burrow availability and habitat suitability for other wildlife species as a result of prairie dog colony expansion in the absence of rodenticide and other prairie dog management tools,
- Risk of lead poisoning to predators and scavengers feeding on prairie dogs that have been shot,
- Disruption of prairie dog social organization as a result of prairie dog shooting,
- Disturbance of prairie dogs and other wildlife by prairie dog shooters and shooting.

All direct, indirect and cumulative effects on each species at risk under each alternative are considered and evaluated in detail in the Biological Assessment and Evaluation (Appendix E in the DEIS). Additional cumulative effects are discussed in Section 3.14 of this document.

The evaluation process culminates with a "biological determination". The menu of biological determinations for federally listed and protected threatened and endangered species is as follows:

- No effect (NE),
- May affect, not likely to adversely affect (MA-NLAA),
- May affect, likely to adversely affect (MA-LAA).

The menu of biological determinations for species proposed for protection under the Endangered Species Act is:

- Not likely to jeopardize continued existence (NLJ),
- Likely to jeopardize continued existence (LJ).

It is important to point out that there has been no critical habitat designated or proposed for any portion of the project area.

The menu of biological determinations identified above for proposed species is applied to the black-footed ferret. Although the species is federally listed as endangered, the reintroduced Conata Basin population is designated as a “non-essential experimental population” under Section 10j of ESA (U.S. Fish and Wildlife Service 1994) and treated as a proposed species for consultation purposes under Section 7 of ESA.

It is the policy of the U.S. Department of Agriculture and Forest Service not to approve, fund or take any action that is likely to jeopardize the continued existence of threatened and endangered species or destroy any critical habitats or habitats necessary for their conservation, unless exemption is granted pursuant to subsection 7(h) of the Endangered Species Act (Departmental Regulation 9500-4 and Forest Service Manual 2670.31). A “may affect, likely to adversely affect” or “likely to jeopardize the continued existence” determination indicates that a listed or proposed species, respectively, could be adversely impacted by the proposed action and preferred alternative.

Forest Service Manual 2670 establishes the menu of biological determinations for sensitive species:

- No impact (NI),
- Beneficial impact (BI),
- May adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide (MAII),
- Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide (LRLV).

It is the policy of the Forest Service to avoid or minimize impacts to species designated as sensitive by the agency (Forest Service Manual 2670.31). A “likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide” determination indicates adverse impacts to a species, either at the project scale or range-wide level. If impacts cannot be avoided, the significance of the potential adverse effects has to be analyzed. An action resulting in impacts to a sensitive may be allowed but only when the action would not result in a loss of species viability or create significant trends toward Federal listing.

In this analysis, biological determinations are made for each listed, proposed or sensitive species under each alternative and for each national grassland and forest. This provides consistency with the approach used in the Biological Assessment and Evaluation for the revised LRMP (Appendix H in the LRMP FEIS). This is the most appropriate manner of making biological determinations, given the large distances between the individual

national grasslands and forests in the project area. Biological determinations were made and identified for Alternatives 1, 2 and 3 in the Biological Assessment and Evaluation for the DEIS (Appendix E). Only Alternative 3, the preferred alternative, is re-analyzed in the Biological Assessment and Evaluation for the FEIS (Appendix E). Appendix E of the DEIS should be consulted for more detailed information on the biological determinations' for species at risk under Alternatives 1 and 2 and Appendix E in this FEIS should be consulted for the more detailed information on the determinations under Alternative 3 (preferred).

The biological determinations for federally listed species in the project area are provided in Table 3-10. The abbreviation NA stands for "not applicable" meaning that the species does not occur in the area, and a biological determination is not needed.

The biological determination for the black-footed ferret in Table 3-10 is for the non-essential experimental population in the Conata Basin/Badlands reintroduction area. A map of the non-essential experimental population area is provided in Appendix A. As previously discussed, that portion of the Conata Basin/Badlands experimental ferret population using the national grassland is treated as a "proposed" species, while the animals, from the population using the adjoining Badlands National Park is treated as a "threatened" species for Section 7 consultation under ESA. It is important to point out that prairie dog shooting in any national grassland colonies along the Badlands National Park will not be authorized and if any rodenticide use is recommended in these same colonies, it will likely be minimal. Also, before any shooting or rodenticide use is authorized in colonies along the national park, U.S. Fish and Wildlife Service will be consulted first. For these reasons, it is unlikely that any prairie dog management actions on the national grasslands will adversely affect ferrets occurring on the national park. Also, all of the alternatives maintain Conata Basin prairie dog populations and distribution on the national grassland above the minimum habitat threshold projected as needed for long-term persistence of the ferret population (Livieri and Perry 2005). From a habitat perspective, the integrity of the Conata Basin/Badlands experimental black-footed ferret population should be maintained under all alternatives, and adverse effects on ferrets occurring in Badlands National Park are not expected.

**Table 3-10. Biological determinations<sup>1</sup> for federally listed threatened and endangered species**

Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
<b>Black-footed Ferret</b>	NLJ	NA	NA	NLJ	NA	NA	NLJ	NA	NA
<b>Bald Eagle</b>	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA	MA-NLAA
<b>Whooping Crane</b>	MA-NLAA	MA-NLAA	NA	MA-NLAA	MA-NLAA	NA	MA-NLAA	MA-NLAA	NA

<sup>1</sup> NLJ - Not likely to jeopardize continued existence

MA-NLAA - May affect, not likely to adversely affect

NA - Not applicable, species and/or suitable habitat does not occur.



The biological determinations for sensitive species are summarized in Table 3-11. Adverse biological determinations (LRLV) are highlighted in the table. Most of the biological determinations under Alternative 1 in Tables 3-10 and 3-11 are taken from the Biological Assessment and Evaluation for the revised LRMP (Appendix H in the LRMP FEIS), since Alternative 1 prescribes the prairie dog direction in the revised LRMP. The only new analyses for Alternative 1 are for the newly designated sensitive species.

Adverse biological determinations were limited to black-tailed prairie dog and western burrowing owl on the Fort Pierre and Oglala National Grasslands under Alternative 2 (Table 3-11). Prairie dog colonies provide the core burrowing owl habitat on the national grasslands in the project area and are especially important for burrowing owl nesting and brooding. As previously mentioned, the analyses used in the process of deriving the most appropriate biological determinations assume that all colonies in the boundary management zones are eventually treated with rodenticide. Under this assumption and Alternative 2, prairie dog populations are extirpated or nearly extirpated on the Fort Pierre and Oglala National Grasslands (Table 3-2), resulting in the adverse determinations. However, it is unlikely that every colony will be treated with rodenticide during the life of this project, but at this time and without site-specific evaluations, the extent of actual rodenticide use is unknown. It is possible that after site-specific evaluations to determine if encroachment is actually occurring or imminent, rodenticide may be recommended and applied only to some colonies within the boundary management zones. Depending on the number and acreage of colonies not treated with rodenticide, the biological determinations for both the prairie dog and burrowing owl could be downgraded to "may adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide". It is also important to point out that the current adverse determinations for both of these species are based on concerns about the long-term sustainability of these species at the scale of the individual national grassland, and not at the larger scale of the range-wide distribution of the species.

The biological determinations for the northern harrier were changed for all alternatives, from "no impact" to "may adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide. This was done between the DEIS and FEIS after considering public comments expressing concern over potential effects of lead and secondary poisoning risks to the species.

The biological determinations in Tables 3-10 and 3-11 do not consider the possibility of plague epizootics since plague has never been confirmed in the project area. However, the possibility of future plague in the prairie dog populations cannot be ruled out, and the Forest Service would coordinate with other state and federal agencies if plague eventually occurs in the project area.

Several of the sensitive bird species are granivorous and could be at some risk of primary poisoning if they ingested rodenticide bait (oats). To reduce primary poisoning risks to sensitive bird species, as well as other migratory landbirds, the LRMP provides direction that defers rodenticide applications until October 1 but before December 31. In this manner, most of the migratory birds have migrated out of the area and are not present during rodenticide applications. It's also important to point out that Tietjen (1976) found

that when properly applied, zinc phosphide rodenticide bait (oats) do not pose significant hazards to non-target species, and he further reported that it was not necessary to exclude non-target species during rodenticide application. He further stated:

“...if prairie dog colonies are treated according to the final recommended bait-treatment standard for 2 percent zinc phosphide-treated steam-rolled oats, several factors should contribute to low primary and secondary hazards: (1) the food habits, preferences, and feeding patterns of the domestic and wild nontarget species; (2) the relatively low concentration of zinc phosphide in the bait; (3) the small amount of bait applied per unit area; (4) the widely scattered bait distribution pattern; and (5) the short time most of the bait is exposed. Taking these into consideration, we believe that the baiting treatment we recommend would present no significant hazards to nontarget species...”

This information, along with the delayed rodenticide application date specified in the LRMP, suggests that risks to non-target landbirds, as well as other wildlife species, are minimal where and when EPA label requirements for the application of zinc phosphide rodenticide are followed. His comments relate equally to other resident wildlife. His assessment of low primary and secondary risks to non-target birds is further supported by studies conducted in Conata Basin (Apa et al. 1991, Uresk et al. 1988). However, losses of non-target small mammals to zinc phosphide rodenticide may be more significant. Another study in Conata Basin documented short-term reductions in deer mice following zinc phosphide applications and suspected possible non-target losses of *Perognathus* spp. and *Dipodomys* spp. (Deisch et al. 1990).

**Table 3-11. Biological determinations<sup>1</sup> for sensitive species in the project area**

Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
Black-tailed Prairie Dog	MAII	MAII	MAII	MAII	LRLV	LRLV	MAII	MAII	MAII
Swift Fox	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Greater Prairie Chicken	NA	MAII	NA	NA	MAII	NA	NA	MAII	NA
Long-billed Curlew	NI	NI	NI	NI	NI	NI	NI	NI	NI
Greater Sage Grouse	NI	NA	NA	NI	NA	NA	NI	NA	NA
Northern Harrier	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Ferruginous Hawk	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
Chestnut-collared Longspur	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII	MAII
McCown's Longspur	NA	NA	MAII	NA	NA	MAII	NA	NA	MAII
Western Burrowing Owl	MAII	MAII	MAII	MAII	LRLV	LRLV	MAII	MAII	MAII



Species	Alternative 1 (No Action)			Alternative 2			Alternative 3 (Preferred)		
	BGNG	FPNG	ONG	BGNG	FPNG	ONG	BGNG	FPNG	ONG
Short-eared Owl	MAII	MAII	MAII	NI	NI	NI	NI	NI	NI
Mountain Plover	NI	NA	NA	NI	NA	NA	NI	NA	NA
Brewer's Sparrow	NI	NA	NI	NI	NA	NI	NI	NA	NI
Grasshopper Sparrow	MAII	MAII	MAII	NI	NI	NI	NI	NI	NI
Trumpeter Swan	MAII	NA	NA	MAII	NA	NA	MAII	NA	NA
Regal Fritillary	MAII	MAII	NA	NI	NI	NA	NI	NI	NA

<sup>1</sup> MAII – May adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide

NA – Not applicable

LRLV - Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide

NI - No impact

## 3.8 Management Indicator Species and Other Wildlife

### 3.8.1 Affected Environment

Management indicator species for rangeland and grassland habitats in the project area are black-tailed prairie dog, greater prairie chicken, plains sharp-tailed grouse, and greater sage grouse. The biological communities that they represent on the national grasslands and forests are presented in Table 3-12. Only those NFS lands that support black-tailed prairie dog populations are listed in the table, and maps of the six geographic areas identified in the table for the Buffalo Gap National Grassland are provided in Appendix A – Maps of this FEIS.

Habitat relationships for each indicator species are discussed in Appendix H of the LRMP. Prairie dogs prefer and maintain low structure grassland habitat while the others select for diverse high structure grassland habitats on mixed grass and sandhills prairie. Where prairie dogs expand uniformly over extensive grassland areas, habitat suitability for the other management indicator species decreases. The desired mix of grassland structure levels and resulting habitat conditions for management indicator species was addressed in Chapter 2 of the LRMP by establishing grassland structure objectives for each NFS unit and geographic area. The objectives specify the desired amounts of low, moderate and high grassland structure, recognizing low structure grasslands would extend beyond just prairie dog colonies.

Potential habitat for each management indicator species was assessed and mapped for each national grassland and forest as part of the LRMP revision process. The potential habitat information is summarized and presented in Tables 3-129, 130, 131, and 132 in the LRMP FEIS and addendum. Some modifications and refinements to the geographic information system model used to predict potential black-tailed prairie dog habitat in the



LRMP FEIS were recently applied, but the changes in model outputs were minor. Also, a cooperative sagebrush aerial survey and mapping project with the South Dakota Department of Game, Fish and Parks was recently completed in the Fall River West Geographic Area. This project provided more accurate information than previous mapping projects on the distribution and amounts of sagebrush and potential sage grouse habitat. Approximately 15,800 acres of sagebrush habitat were listed in Table 3-131 of the LRMP FEIS, and the new survey indicates that the more accurate figure is approximately 14,560 acres.

Population and habitat objectives for each management indicator species are provided in Chapter 2 of the LRMP and are summarized here. Objectives for black-tailed prairie dogs vary between national grasslands and geographic areas. The objectives for black-tailed prairie dogs for Fort Pierre and Oglala National Grasslands are to increase prairie dog populations and habitat and to establish a colony complex on each area. The colony complexes are to meet specified criteria to help ensure long-term persistence of prairie dog populations in those areas. The criteria call for a minimum of 1,000 acres in 10 or more colonies with inter-colony distances not exceeding 6 miles and are based on information from Hanski 1997, Knowles 1985, Luce 2001, and Samson 2000. It is important to point out that the LRMP specifies that colonies on adjoining lands protected under conservation agreements or easements can be counted as part of each complex. In Conata Basin (Wall Southwest Geographic Area), the objective is to increase prairie dog populations and habitat and to maintain the colony complexes already established in the Basin.

**Table 3-12. Management indicator species**

Area	Biological Community	Management Indicator Species
<b>Buffalo Gap N.G.</b>		
Fall River Northeast G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Fall River Southeast G.A.	Diverse high structure grasslands Prairie dog colonies and low structure grasslands	Plains sharp-tailed grouse Black-tailed prairie dog
Fall River West G.A.	Sagebrush with tall, dense and diverse understories Prairie dog colonies and low structure grasslands	Greater sage grouse Black-tailed prairie dog
Wall North G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Wall Southeast G.A.	Diverse high structure grasslands	Plains sharp-tailed grouse
Wall Southwest G.A.	Prairie dog colonies and low structure grasslands	Black-tailed prairie dog
<b>Fort Pierre N.G.</b>	Diverse high structure grasslands	Plains sharp-tailed grouse
	Diverse high structure grasslands	Greater prairie chicken
	Prairie dog colonies and low structure grasslands	Black-tailed prairie dog

Area	Biological Community	Management Indicator Species
	structure grasslands	
Oglala N.G.	Diverse high structure grasslands Prairie dog colonies and low structure grasslands	Plains sharp-tailed grouse Black-tailed prairie dog
Nebraska N.F. (Bessey Ranger District)	Diverse high structure grasslands Diverse high structure grasslands	Plains sharp-tailed grouse Greater prairie chicken

Management objectives for plains sharp-tailed grouse and greater prairie chicken are to provide diverse and quality habitats to help support stable to increasing populations. The objectives further specify that this would be accomplished by meeting, in a timely manner, the objectives for high grassland structure prescribed in the LRMP.

Objectives for greater sage grouse in the Fall River West Geographic Area are similar to those for sharp-tailed grouse and greater prairie chicken. However, there have been no sightings over the last couple years of the small flock that has traditionally used the national grassland in this area. Only one sage grouse display ground is known to have been active in the area over the last couple decades, and in the spring of 2003 and 2004, the display ground was not used. The abandonment of this display ground coincided with arrival of West Nile virus in this area. This population may have moved or may have simply been a victim of small population biology and possible disease.

Current habitat suitability for each management indicator species, except greater sage grouse, is presented in Tables 3-129, 130 and 132 in the LRMP FEIS and addendum. Recent monitoring suggests that these levels of habitat suitability have not appreciably changed (USDA Forest Service 2004). The recent cooperative sagebrush and sage grouse habitat project in the Fall River West Geographic Area provided information to further assess habitat suitability for greater sage grouse. Of the 14,060 acres of sagebrush habitat, approximately 19 percent consists of moderate to high density sagebrush that provides higher levels of suitability for nesting, brooding and wintering.

There are a large number of wildlife species, in addition to "at risk" and management indicator species, which commonly use prairie dog colonies. This list includes, but is not limited to: pronghorn, coyote, badger, cottontail, golden eagle, numerous small mammal and bird species, and several reptile and amphibian species (Agnew et al. 1986, Sharps and Uresk 1990). Other wildlife species that prefer taller grassland vegetation patches would be negatively affected if prairie dog colonies expand to occupy major portions of individual landscapes. These species include, but are not limited to: bobolink, dickcissel, greater prairie chicken, short-eared owl and prairie vole.

### 3.8.2 Environmental Consequences

Direct and indirect effects on management indicator species of implementing Alternatives 2 and 3 are evaluated based on the likelihood of achieving the objectives for long-term population trends and habitats by 2012. The effects of implementing Alternative 1 have



already been evaluated as part of the recent LRMP revision process but are included and presented in this analysis for comparative purposes.

Direct effects on the black-tailed prairie dog as a management indicator species are the result of the use of prairie dog rodenticide and to a lesser extent, regulated prairie dog shooting in Conata Basin. Indirect effects generally relate to the use of non-lethal methods to modify habitat suitability for black-tailed prairie dogs, but these activities were already analyzed in the revised LRMP.

Direct effects on the other management indicator species are the risk of rodenticide ingestion and primary poisoning. Indirect effects are the result of changes in habitat suitability (grassland vegetation structure) following increases or decreases in prairie dog populations. Under Alternative 1, the desired levels of low structure for each geographic area where the plains sharp-tailed grouse, greater prairie chicken, and sage grouse are management indicator species, exceed the predicted 2012 prairie dog colony acreages. Therefore, the predicted future prairie dog colony expansion under Alternatives 1 and 3 is not expected to detract from attainment of the population and habitat objectives for the other management indicator species. Management of livestock grazing is the primary factor influencing the likelihood of attaining long-term objectives for the other management indicator species.

**Black-tailed Prairie Dog.** Colony acreages and estimated prairie dog populations in the geographic areas where the black-tailed prairie dog is a management indicator species are presented in Table 3-13. The base years used for comparison purposes in the table are 1996-97; the survey information used in the LRMP FEIS analyses. The estimated prairie dog populations in the table are based on the range of prairie dog densities found across colonies in Conata Basin (Livieri and Perry 2005). The prairie dog densities range from a low of 6 prairie dogs per acre to a high of 15 per acre. As demonstrated in the table, comparisons of the 1996-97 colony acreages with the predicted acreages for 2012 indicate upward prairie dog population trends under Alternatives 1 and 3 in each of the national grasslands and geographic areas. Alternative 2 results in upward trends on the Buffalo Gap National Grassland geographic areas and negative trends in colony acreage on the Fort Pierre and Oglala National Grasslands (geographic areas). Under Alternative 2, the prairie dog population on Fort Pierre National Grassland is essentially extirpated, assuming all the prairie dog colonies in the boundary management zone are eventually treated with rodenticide. If extirpation occurred on the national grassland under Alternative 2, the distribution of prairie dog colonies on NFS lands in the project area would be substantially reduced.

The population trend analysis in the preceding paragraph uses changes in colony acreage as an indicator of population trend. When comparing the population estimates, rather than the colony acreages, from the 1996-97 baseline information to the predicted populations in 2012, Alternative 1 clearly indicates positive population trends in all areas. The population trends on the Oglala and Fort Pierre National Grasslands under Alternative 2 are obviously down. However, under Alternative 2 the ranges for the 1996-97 baseline populations and the predicted 2012 populations overlap for the Buffalo Gap National Grassland geographic areas. If midpoints of the ranges are compared for Alternative 2, upward population trends are indicated for each of the geographic areas on the Buffalo Gap National Grassland, as did the comparison of colony acreages (preceding



paragraph). Under Alternative 3, the predicted population ranges for the Wall Southwest Geographic Area and the Fort Pierre and Oglala National Grasslands overlap with the respective 1996-97 ranges, but again, if the midpoints of the ranges are compared, upward population trends are indicated. The population ranges for the other geographic areas on the Buffalo Gap National Grassland clearly indicate an upward population trend.

Current and predicted colony acreages in each of the colony complex areas prescribed in the LRMP for Fort Pierre and Oglala National Grasslands are presented in Table 3-14.

A colony complex meeting and exceeding the minimum criteria already exists on the Oglala National Grassland and would be retained and expanded under Alternatives 1 and 3. Attainment of a colony complex meeting the specified criteria on the Fort Pierre National Grassland by 2012 under Alternative 1 could be attained by 2012 but under Alternative 3, some additions to the complex in the form of colonies on adjoining lands under conservation agreements or easements would certainly help meet the criteria in a timelier manner. Otherwise, a few more years beyond 2012 of colony expansion on the national grassland would be needed to eventually attain the minimum criteria.

Attainment of the colony complexes on the Oglala and Fort Pierre National Grasslands is not feasible under Alternative 2, assuming that all or most of the prairie dog colonies in the boundary management zones are eventually treated with rodenticide.

**Greater Prairie Chicken.** Black-tailed prairie dogs and greater prairie chicken both occur on the Fort Pierre National Grassland. As prairie dogs expand, increases in low grassland structure and corresponding decreases in moderate and high structure would be expected, thus reducing overall habitat suitability for greater prairie chicken. However, under Alternatives 2 and 3, prairie dog colony acreages decrease or remain similar over the next several years and therefore do not detract from attainment of greater prairie chicken population or habitat objectives (Table 3-13). The long-term population trend for greater prairie chicken on the Fort Pierre National Grassland is clearly upward (Moravek 2004).

**Plains Sharp-tailed Grouse.** Black-tailed prairie dogs occur in all the geographic areas where the plains sharp-tailed grouse is identified as a management indicator species. Under Alternatives 2 and 3, prairie dog colony acreages decrease or remain similar over the next several years and therefore do not detract from attainment of sharp-tailed grouse population or habitat objectives in any of the geographic areas where it is a management indicator species (Table 3-13). The long-term population trend for sharp-tailed grouse on the Fort Pierre National Grassland is stable to slightly upward (Moravek 2004). However, current data are insufficient to assess long-term population trend of this species on the Oglala National Grassland, but a systematic monitoring protocol is being developed and would be implemented beginning in the spring of 2006. This protocol would allow sharp-tailed grouse populations monitored and trends to be determined. Similar protocols are also being developed for the Buffalo Gap National Grassland. Limited data for the Wall Southeast and North Geographic Areas show an upward trend from 1985 through 1999 but then plummets from 2000 to 2004 (South Dakota Department of Game, Fish and Parks, unpublished data). This is likely the result of drought conditions during that period.

**Greater Sage Grouse.** Black-tailed prairie dogs occur in the Fall River West Geographic Area where the greater sage grouse is identified as a management indicator species (Table 3-12). There is one colony located close to the traditional sage grouse display

ground, but it has essentially remained the same size for the last 15 or more years, as indicated in the Biological Assessment and Evaluation (Appendix E). This colony is bordered by sagebrush and has not been treated with rodenticide. Although black-tailed prairie dogs have been observed and reported to gradually remove sagebrush from the periphery of colonies, this has not been observed at this site. It appears that other factors resulted in the loss or movement of the sage grouse population from this area. It is highly unlikely that implementation of Alternatives 2 and 3 would have any significant effects on sagebrush habitat in this area over the next several years or on potential sage grouse populations that could eventually re-establish in the area.

**Other Wildlife Species.** Direct effects could include direct loss of granivorous birds and small mammals (APHIS 1994, Deisch et al. 1990, Apa et al. 1991, Uresk et al. 1988) from consumption of zinc phosphide grain bait. Primary poisoning risks to native ungulates like pronghorn are likely insignificant and discountable due to low application rates specified by the pesticide label. Adherence to pesticide label requirements also reduces primary poisoning risks. Forest Service also defers rodenticide applications until October 1 or later, and this further reduces risks to migratory birds that typically leave the area prior to this date. A risk assessment on chemical methods of animal damage control prepared by APHIS (1994) provided an excellent review of primary and secondary non-target risks to wildlife from use of 2% zinc phosphide rodenticide bait.

Indirect effects include both secondary poisoning risks and altered habitat structure following prairie dog removal or colony expansion. Because zinc phosphide breaks down rapidly in the digestive tract of the target species, secondary poisoning risks to predators and scavengers appear to be discountable (APHIS 1994). Also, ferruginous hawks and golden eagles have been repeatedly observed feeding on prairie dog carcasses and stripping and setting the gastro-intestinal tract to the side, without consuming any of the guts or their contents. Other buteos probably consume their prey in a similar manner, and this behavior undoubtedly reduces the risks of secondary non-target poisoning.

Indirect effects on grassland birds from altered habitat structure resulting from prairie dog removal or colony expansion have already been analyzed and discussed earlier in this section for management indicator species and for other grassland birds in Chapter 3 of the LRMP FEIS.

In terms of native ungulates, pronghorn are attracted to prairie dog colonies for foraging, but it is unlikely that prairie dog populations would change significantly in response to changes in prairie dog colony acreages (Krueger 1986, Whicher and Detling 1993).



Table 3-13. Active colony acres and estimated prairie dog population (in thousands)

Geographic Areas with Black-tailed Prairie Dog as MIS	LRMP FEIS (1996-97) <sup>2</sup>	Alternative 1 Current (2004)	Alternative 1 Predicted (2012) <sup>3</sup>	Alternative 2 Current (2004)	Alternative 2 Predicted (2012) <sup>3</sup>	Alternative 3 Current (2004)	Alternative 3 Predicted (2012) <sup>3</sup>
<b>Buffalo Gap N.G.</b>							
Fall River Southeast <sup>1</sup>	490 (2.9 to 7.3)	2,160 (13.0 to 32.4)	4,700 to 9,500 (28.2 to 142.5)	720 (4.3 to 10.8)	900 to 1,100 (5.4 to 16.5)	1,170 (7.0 to 17.5)	1,800 to 2,500 (10.8 to 37.5)
Fall River West <sup>1</sup>	240 (1.4 to 3.6)	600 (3.6 to 9.0)	900 to 1,800 (5.4 to 27.0)	260 (1.6 to 3.9)	300 to 400 (1.8 to 6.0)	470 (2.8 to 7.0)	600 to 800 (3.6 to 12.0)
Wall Southwest <sup>1</sup>	11,940 (71.6 to 179.1)	20,182 (121.1 to 302.7)	30,000 to 62,000 (180.0 to 930.0)	14,965 (89.8 to 224.4)	16,500 to 19,900 (99.0 to 298.5)	19,060 (114.4 to 285.9)	22,700 to 32,000 (136.2 to 480.0)
Fort Pierre N.G. <sup>1</sup>	720 (4.3 to 10.8)	1,260 (7.6 to 18.9)	1,900 to 2,700 (11.4 to 40.5)	0 (0)	0 (0)	870 (5.2 to 13.0)	1,100 to 1,400 (6.6 to 21.0)
Oglala N.G. <sup>1</sup>	740 (4.4 to 11.1)	2,220 (13.3 to 33.3)	3,300 to 6,800 (19.8 to 102)	80 (0.5 to 1.2)	<100 (<1.5)	1,170 (7.0 to 17.6)	1,400 to 1,800 (8.4 to 27.0)
<b>Other Geographic Areas</b>	LRMP FEIS (1996-97) <sup>2</sup>	Alternative 1 Current (2004)	Alternative 1 Predicted (2012) <sup>3</sup>	Alternative 2 Current (2004)	Alternative 2 Predicted (2012) <sup>3</sup>	Alternative 3 Current (2004)	Alternative 3 Predicted (2012) <sup>3</sup>
<b>Buffalo Gap N.G.</b>							
Fall River Northeast	960 (5.7 to 14.4)	1676 (10.0 to 25.1)	2,500 to 5,100 (15.0 to 76.5)	107 (642 to 1.6)	100 to 200 (0.6 to 3.0)	822 (4.9 to 12.3)	1,000 to 1,400 (6.0 to 21.0)
Wall North	420 (2.5 to 6.3)	338 (2.0 to 5.1)	500 to 1,000 (3.0 to 15.0)	0 (0)	0 (0)	138 (0.8 to 2.1)	200 to 300 (1.2 to 4.5)
Wall Southeast	870 (5.2 to 13.1)	1078 (6.5 to 16.2)	1,600 to 3,300 (9.6 to 49.5)	300 (1.8 to 4.5)	300 to 400 (1.8 to 6.0)	697 (4.2 to 10.5)	800 to 1,200 (4.8 to 18.0)

<sup>1</sup> Geographic area where black-tailed prairie dogs are a management indicator species.

<sup>2</sup> Analyses in the LRMP FEIS used 1996-97 prairie dog colony survey information

<sup>3</sup> Lower end of each range for colony acreage is predicted if precipitation patterns tend to be normal to above normal over the next several years, while the upper end of the range is predicted if extended dry conditions prevail



**Table 3-14. Current and predicted colony complexes on Fort Pierre and Oglala National Grasslands**

	<b>Alternative 1 (No Action)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
<b>Fort Pierre N.G.</b>			
Current NFS Complex	770 acres 11 colonies	0	550 acres 10 colonies
Predicted NFS Complex (2012)	1,100 to 1,700 acres >11 colonies	0	700 to 900 acres > 11 colonies
<b>Oglala N.G.</b>			
Current NFS Complex	2,220 acres 26 colonies	80 acres >1colony	1,170 acres >10 colonies
Predicted NFS Complex (2012)	3,300 to 6,800 acres >26 colonies	<100 acres >2 colonies	1,400 to 1,800 acres >10 colonies

## 3.9 Recreation Resources

### 3.9.1 Affected Environment

Recreation associated with prairie dog colonies consists mostly of wildlife viewing and recreational prairie dog shooting. For purposes of this analysis, opportunities for viewing wildlife commonly found on prairie dog colonies are assumed to be proportional to the acreage of active prairie dog colonies.

Forest Service shares responsibilities with state agencies for management of wildlife on national forests and grasslands. In terms of recreational prairie dog shooting, the Forest Service (Nebraska National Forest) has issued prairie dog shooting restrictions and prohibitions in designated black-footed ferret habitat on the Buffalo Gap National Grassland. However, elsewhere on the national grasslands and forests in the project area, with the exception of administrative sites, Forest Service defers to the states for decisions relating to prairie dog shooting restrictions, prohibitions and regulations. Interagency coordination and consultation between the Forest Service and state agencies on proposed prairie dog shooting restrictions and regulations affecting NFS lands is critically important, regardless of the lead agency.

More information on these activities is presented in Chapter 3 of the LRMP FEIS.

### 3.9.2 Environmental Consequences

Quantitative data on the number of recreation visitor days associated with wildlife viewing on prairie dog colonies in the project area are not available. Instead, it was assumed that prairie dog viewing opportunities on the national grasslands and forests were proportional to predicted increases or decreases in total colony acreage by 2012. Direct effects of

alternatives on wildlife viewing opportunities associated with prairie dog colonies were determined by simply comparing current and predicted (2012) prairie dog colony acreages under each alternative. The predicted acreages of active prairie dog colonies by 2012 under each alternative are presented in Table 3-2. Under Alternatives 1 and 3, wildlife viewing opportunities associated with prairie dog colonies would increase by approximately 161 and 20 percent by 2012, respectively. Under Alternatives 2, viewing opportunities would decrease by approximately 33 percent. These percentages are based on comparisons of the midpoints of the predicted colony acreage ranges presented in Table 3-2.

Forest Service is not proposing any additional prairie dog shooting restrictions under any alternative. Under Alternatives 2 and 3, the Forest Service is considering modifying its existing prairie dog shooting prohibition in Conata Basin by allowing some regulated prairie dog shooting in selected colonies along the outer boundaries of the black-footed ferret habitat area to help reduce unwanted colonization on adjoining lands. It is anticipated that the amount of prairie dog shooting in Conata Basin would be very limited and its effects on recreational opportunity insignificant. Therefore, no further analysis or discussion on recreational prairie dog shooting is presented.

It is recognized that recreational prairie dog shooting and wildlife viewing on prairie dog colonies can be conflicting activities. Because prairie dog shooting opportunity is not expected to change significantly under any alternative, no analysis of the relationship between these two activities was conducted.

### **3.10 Social & Economic Factors**

#### **3.10.1 Economic Affected Environment**

A description of the economic and social environment in the project area is documented in Chapter 3 of the LRMP FEIS ([www.fs.fed.us/ngp](http://www.fs.fed.us/ngp)) under the Community and Lifestyle Relationships discussion.

Economic issues addressed below in Section 3.10.2 include:

- Effects of unwanted colonization on adjoining private or tribal lands,
- Costs and effectiveness of prairie dog management on public and private lands,
- Local economic stability.

#### **3.10.2 Economic Environmental Consequences**

Generally, economic efficiency and cost effectiveness are not considered “environmental issues” pursuant to the National Environmental Policy Act (NEPA). However, it is a policy in Region 2 of the Forest Service to conduct and consider financial and cost efficiency information for projects where an environmental analysis (EA) or EIS is prepared or where the total costs over the life of a project is expected to equal or exceed \$50,000. This proposed action meets both of the above criteria.

Two economic analyses were completed for this proposed action by experienced economists. One of the economic analyses was completed early in the DEIS process on preliminary data

to provide some insights on the potential long-term effects of prairie dog management under each of the alternatives on future permitted livestock grazing on national grasslands. The second economic analysis was conducted between the DEIS and FEIS. Both economists reported too little data to complete traditional benefit – cost analyses. Also, both economists acknowledged that many of the considerations associated with a project of this type, especially benefits, are difficult to quantify economically.

**Effects of unwanted colonization on adjoining private or tribal lands.** Many adjoining landowners have expenses for managing prairie dogs on their lands. However, available quantitative information on these expenses was minimal. One ranching family adjacent to national grasslands commented that their typical annual costs for prairie dog management are as follows:

- \$10 per acre of colony from forage loss,
- \$6 per acre for rodenticide cost and application,
- \$50 per acre for tilling and re-seeding.

Their total annual economic loss due to prairie dogs was greater than \$17,000. It was uncertain whether the re-seeding costs were an annual re-occurring cost or just a single one-time cost?

The total costs and losses for an individual landowner would obviously be dependent on the acreage of colonies on his or her land. The extent that the national grasslands are contributing to these additional costs for individual landowners is obviously very difficult to quantify and assess.

**Costs and effectiveness of prairie dog management on public and private lands.** A least-cost analysis of prairie dog management on the national grasslands for the period 2005 through 2012 identifies Alternative 1 as the least costly alternative (\$966,000) because the alternative does not include the extensive rodenticide applications and costs for regulating shooting. Alternative 2 is the most expensive alternative (\$1.93 million) because of costs associated with regulating shooting and the more extensive rodenticide use. Alternative 3 is less expensive (\$1.68 million) than Alternative 2 because of less extensive rodenticide use. The economic attractiveness of Alternative 1, in terms of present net value (PNV), is short-lived because of the significant increases in prairie dog colony acreages on the national grasslands and further encroachment issues, despite an investment of almost a million dollars. It needs to be reiterated that non-lethal tools typically reduce, not stop, rates of annual colony expansion and establishment of new colonies.

A financial revenue-cost analysis compared the direct costs to the Forest Service of implementing each alternative through 2012. The direct costs were:

- Alternative 1 = \$657 thousand,
- Alternative 2 = \$1.97 million,
- Alternative 3 = \$1.69 million.

Both of these analyses consider the opportunity costs lost due to the estimated temporary reductions in permitted livestock grazing, as a result of vegetation management fencing. However, the least cost analysis uses RPA market values for grazing while the financial



analysis uses the actual Forest Service grazing fee. The complete financial revenue-cost and least-cost analyses are both maintained in the project record at the Supervisor's Office in Chadron, Nebraska.

Adjoining landowners are generally concerned about the effects of prairie dog movement from national grasslands on the effective life of rodenticide applications on their lands. Colonies treated with rodenticides re-populate sooner when prairie dogs move in from adjoining lands or other nearby active colonies. When this occurs, landowners generally apply rodenticides more frequently and to larger colony acreages, thereby increasing their expenses.

**Local Economic Stability.** A long-standing issue associated with prairie dog conservation and management has been concern over the impacts of prairie dogs on the economic well-being of local agricultural families and communities. This concern was reinforced in comments received in response to the DEIS.

Livestock production from NFS lands on the Northern Great Plains is very important to the people who hold grazing permits. Overall, though, the national grasslands and forests of the Northern Great Plains play a minor role in the total production of cattle and sheep. Total production from the 37 counties in the area of influence (those counties containing or adjacent to National Forest System lands in the planning area) is approximately 2.2 percent of the national cattle herd size. Of the 37-county cattle production total, less than 4 percent of the 2.2 percent contribution to the national cattle herd is derived from the national grasslands and forests on the Northern Great Plains (Census of Agriculture 1992; Forest Service grazing records<sup>1</sup>). However, livestock production from the national grasslands is very important to local agricultural families with national grassland grazing permits. Many grazing permittees have an interdependent relationship with the national grasslands. Therefore, any increase or decrease in forage for permitted livestock on the national grasslands may cause adjustments in herd size or other ranch operations. These adjustments may cause some economic hardship on individual ranches. The effects of any future adjustments in permitted livestock grazing on local economic stability as a result of this proposed action are minor since the proposed action is primarily limited to prairie dog and vegetation management along property boundaries. Any adjustments in permitted livestock grazing under this proposed action (Table 3-7) will be temporary and limited to property boundary areas primarily during drought. Under Alternative 1, the potential reductions could be 1 to 3% of the grazing levels typically authorized during years of normal or better precipitation patterns. Under Alternatives 2 and 3, potential reductions could be 1% or less of the authorized grazing levels shown in Table 3-6. Any long-term or permanent adjustments in permitted livestock grazing across entire grazing allotments, including interior areas, would be addressed in the allotment management planning process, and it is possible that reductions in permitted livestock grazing made at that time could be more substantial, and result in some economic impacts in the form of jobs and income. This was evident in the economic analysis conducted earlier in the DEIS process on some preliminary data.

The proposed action described in this FEIS is primarily focused on reducing prairie dog colony encroachment on adjoining lands along national grassland property boundaries. However, it was beyond the scope and timeframes of this FEIS to quantify and assess the economic impacts of prairie dog colonization on adjoining private or tribal lands that could be attributed to national grasslands. The Forest Service acknowledges economic impacts to

private or tribal landowners and managers from prairie dogs and their management. It also acknowledges the difficulty in determining and quantifying the impacts that could be attributed solely to the national grasslands. Prairie dogs from colonies on national grasslands obviously cannot be distinguished from prairie dogs that immigrate from colonies on other land jurisdictions. Beyond the year of a rodenticide application, prairie dogs that survive a rodenticide application and help re-populate the same colony cannot be distinguished from prairie dogs that may have immigrated from other colonies on the same ranch or from other adjoining lands. The matter is less complicated where you have individual colonies that spread across property lines from national grasslands, but in some cases, it is difficult to assess the original direction of spread or source(s) of prairie dogs.

Economic dependency and diversity are important features of local economies that can assist managers in measuring and assessing the effects of land and resource management decisions on the affected communities. Economic dependency refers the extent a local economy depends on a limited number of industries. The larger a single industry's role is in the economy, the more dependent the economy is on that industry. Economic dependency is estimated by determining the approximate percentage of the total economy of each county that can be attributed to a particular industry. Of special interest in this analysis are those industries that can be affected by each of the three alternatives. In this case, the primary effects are limited to agriculture (livestock production). Numerous counties in the project area are dependent on livestock production for more than 10 percent of their total employment (USDA Forest Service 2001). These counties include Jackson, Fall River, Jones, Lyman, Stanley Counties in South Dakota, and Dawes and Sioux Counties in Nebraska. However, only a fraction of the livestock grazing within these counties occurs on national grasslands, and more specifically, only those national grassland areas along property boundaries. Other industries in the area are either unaffected or the potential economic impacts are minor.

Economic diversity is a measure of how much variety there is in a particular economy and is closely related to economic dependency. It is believed that diverse economies are more resilient to external impacts than less diverse economies. A relatively diverse economy would not be dependent on just one or a few industries. County economic diversity has been measured by an index, called the Shannon-Weaver Entropy Index, and includes all the different economic sectors within those counties (LRMP FEIS). The resulting diversity indices are a function of the number of economic sectors in a county economy and the distribution of employment across those sectors. Usually the larger and more diverse the economy, the larger the index. The index varies between 0 and 1, with higher numbers indicating greater diversity. The Shannon-Weaver Index for the planning units range between 0.5277 and 0.6488.

It's acknowledged that some of the economic analyses presented in the LRMP FEIS were based on a scale larger than the scale of the local community. However, given that the proposed action is limited primarily to a small portion of each national grassland located along property boundaries, the economic impacts on individual local communities will be minor under any of the three alternatives.



### 3.10.3 Social Environmental Consequences

**General Effects.** No alternative is expected to have a substantial effect on the demographic trends within the project area. Communities that are in decline or are growing would continue to decline or grow independent of the alternatives. The primary factor determining the economic health of many communities would be the market price for livestock, oil, gas, and coal, which is outside the span of control of the communities and the Forest Service in the project area.

This section addresses the primary public user/interest groups involved in prairie dog conservation and management on the national grasslands and provides a summary of the effectiveness of the alternatives in responding to the primary preferences, interests and concerns of each major public user/interest group.

**Adjacent landowners.** This group includes adjoining landowners who are mostly agricultural producers. Their primary interests relate to the effects of the alternatives on adjoining agricultural lands. Approximately 150 to 200 landowners in the project area could potentially express concerns about unwanted prairie dog colonization of their agricultural lands that adjoin national grasslands. In some cases, the colonies likely originate from national grasslands, but, at other locations, the colonies appear to have started on the private or tribal lands. Alternatives 2 and 3, with their full suite of management tools, would substantially decrease unwanted prairie dog colonization of private or tribal lands. As a result, Alternatives 2 and 3 provide the most effective response to adjoining landowners while Alternative 1 provides the least effective response.

In addition, approximately 20 rural residences and associated facilities occur in or near prairie dog colonies that also extend onto national grasslands. Prairie dog colonies in close proximity to their residences and outbuildings raised health and safety concerns relative to diseases, rattlesnakes and black widow spiders as well as prairie dog shooting. All alternatives address the health and safety issue, although Alternatives 2 and 3 implement a boundary management zone that provides additional safeguards.

**Agricultural Producers.** This group includes grazing permittees that have interests related to stable grazing levels on their permitted grazing use. Grazing levels will fluctuate based on annual weather patterns and other factors as has occurred in the past. It is documented that the accelerated expansion of prairie dog colonies occurs during drought periods and is further accelerated by the failure to adjust livestock use during drought. These fluctuations will continue in the future under all alternatives, but would be highest under Alternative 1 due to the inability to utilize a full suite of management tools.

**American Indian Community.** All alternatives recognize the rights of American Indians within the project area. In general, American Indian communities have expressed concern that national grasslands are contributing to unwanted prairie dog impacts on adjoining tribal lands. Their primary interests are the economic impacts on the Pine Ridge Indian Reservation and Lower Brule Indian Reservation. Alternative 2 and 3 would reduce impacts from prairie dogs to adjacent tribal agricultural lands through the use of a full suite of management tools. Alternative 1 would have some impacts on tribal agricultural lands.

**Government.** This group is made up of representatives and elected officials from a variety of local, state, and federal agencies and offices. Management preferences vary depending on



agency mission or the views of each entity's constituency. Some of the more prevalent interests across this group are: the continued availability of natural resources and opportunities; diverse vegetation, recreation opportunities, wildlife habitat; and stable economic conditions/lifestyles.

Alternative 1 would have some impact on forage available to livestock and would require some shift in resource uses. Alternatives 2 and 3 would have minor impact on forage available for livestock and could cause some minor shifts in resource uses. Alternative 1 would provide the most diverse vegetation and wildlife habitat. Alternative 3 would rank second in a comparison with Alternative 2. Alternative 1 may have some minor impacts causing some economic and social adjustments. Alternative 2 and 3 would most likely maintain the current economic and social conditions.

**Conservationist/Preservationists/Environmentalists.** This group includes conservation, preservation, and environmental organizations and advocates. Primary management preferences include black-footed ferret recovery, biological diversity, protection of unique wildlife habitat, and animal welfare. Alternative 1 would provide the most acres of prairie dog colonies for black-footed ferret recovery, followed by Alternative 3. Alternative 1 would provide more biological diversity and more unique wildlife habitat, followed by Alternative 3. Alternative 1 would have the least impact to animal welfare due to its emphasis on non-lethal tools.

## **3.11 Oil and Gas Resources**

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### **3.11.1 Affected Environment**

Approximately 187,390 acres of the Buffalo Gap and Oglala National Grasslands are administratively available for oil and gas leasing. There's currently 14 operating oil and gas wells on the Buffalo Gap National Grassland, and it is estimated that there is a potential for a total of approximately 85 oil and gas wells in these areas. Currently, there are approximately 2,800 acres of prairie dog colonies within the available lease area. Although unlikely, most or all of these areas could be stipulated (no surface occupancy) based on known locations of burrowing owl nests. There's also other prairie dog management direction in the LRMP that could affect oil and gas development. This includes a standard in the LRMP prohibiting activities that would alter water flow regimes and flood prairie dog burrows and a guideline that limits road construction in prairie dog colonies.

### **3.11.2 Environmental Consequences**

The predicted direct and indirect effects on oil and gas resources are based on land area available for lease. No surface occupancy stipulations would be applied to known locations of burrowing owl nests in prairie dog colonies. Under Alternative 1, approximately 2,800 acres could be stipulated based on the current distribution and acreage of prairie dog colonies. Under Alternatives 2 and 3, the acres of land potentially stipulated for burrowing owl nests would decrease by 88 and 74 percent, respectively. These same reduction levels would apply to potential limitations on oil and gas development from the standard and guideline limiting new road construction and water discharge (flooding) in prairie dog colonies.

### 3.12 Short-term Uses and Long-term Productivity

The proposed action could result in annual adjustments in permitted livestock grazing on the national grasslands during droughts to help regulate prairie dog populations and dispersal during drought periods through vegetation management. Also, public use of affected areas may be disrupted during rodenticide applications. All areas where rodenticides are applied would be posted with restricted use pesticide advisory signs, and although public use of affected areas is not prohibited, the signing may discourage some recreation use during the 1 to 2 week period when the areas are posted.

### 3.13 Irreversible and Irretrievable Commitments of Resources

There are no irreversible and irretrievable commitments of resources as a result of implementation of Alternative 1. There is an expected irretrievable commitment of resources from Alternatives 2 and 3, but not irreversible. Both alternatives propose rodenticide use which would have effects on several species. Chapter 3, Section 3.7 Species at Risk and Section 3.8 Management Indicator Species discusses these effects. Special consideration is given in all alternatives to meeting and exceeding minimum black-footed ferret habitat thresholds on the Buffalo Gap National Grassland in Conata Basin. This would help ensure a high level of probability for long-term persistence of the nonessential experimental ferret population.

### 3.14 Cumulative Effects

This cumulative effects analysis focuses on the key issues associated with the proposed action of reducing unwanted colonization of prairie dogs on private or tribal lands adjacent to national grasslands. These issues primarily revolve around the effects of lethal management tools, primarily rodenticide, on prairie dog populations and other species closely associated with prairie dogs, especially black-footed ferret and burrowing owl. Environmental effects of applying non-lethal management tools were already disclosed in the LRMP FEIS (Chapter 3 and Appendix H). The social and economic issues are primarily the costs of prairie dog management on both public and adjoining lands and impacts on agricultural production and land values on adjoining lands (see economic analysis).

The geographic scope for this cumulative effects analysis includes the Buffalo Gap, Fort Pierre and Oglala National Grasslands and the adjoining private, tribal and national park lands. This is the most appropriate scale given the key issues associated with this proposed action. For example, this scale is inclusive of the prairie dog colony encroachment issue involving national grasslands and also encompasses the entire Conata Basin black-footed ferret population. Some additional information was available only at the state (Nebraska and South Dakota) level, and this larger scale information helps habitat trend assessment for more mobile wildlife species like burrowing owl. The time frame for this analysis varies, based on the issue.

A variety of human activities and natural events are factors that influence prairie dog populations, colony expansion, and associated species. Many of these activities and events can also affect adjoining landowners, either directly or indirectly. Some of the human activities that influence prairie dog populations and distribution, in addition to rodenticide



use, include livestock grazing practices (vegetation management), prairie dog shooting, and farming (cultivation). Weather (drought) is a natural event that also influences prairie dog colony expansion and establishment rates, which in turn can impact private landowners. Disease can be another factor influencing prairie dog colony expansion and distribution but to date, has not been a factor. Some of these relationships are discussed in more detail in the FEIS and Biological Assessment and Evaluation (Appendix E).

### **Rodenticide Use**

Past and future rodenticide programs on other land jurisdictions add to the effects of the proposed action on prairie dog populations and colony distribution in the vicinity of the project area. For example, approximately 24,250 acres of colonies were reported as treated with rodenticide on private land in the vicinity of the Buffalo Gap National Grassland in 2004 (South Dakota 2005). This was in addition to 6,780 acres that were treated with prairie dog rodenticide on the national grassland in 2004. During the 1970s and 1980s, over 85 percent of the prairie dog colony acreage on the national grassland was treated (USDA Forest Service 1981 and project record). At about the same time, rodenticide was applied to approximately 458,618 acres of colonies on the nearby Pine Ridge Indian Reservation (U.S. Fish and Wildlife Service 2004). Approximately 240,000 acres were re-treated from 1985 through 1986. In regards to future prairie dog rodenticide programs, the Rosebud and Cheyenne River Sioux Tribes recently purchased enough rodenticide to control 16,000 acres of black-tailed prairie dog colonies (Diane Mann-Klager, personal communication). These acreages total approximately 40,000 acres, about 10 percent of the current statewide colony acreage of 412,000 acres.

At a state-wide scale, the Animal and Plant Health Inspection Service (APHIS) has limited information regarding sales of prairie dog rodenticides by their own agency and the State of South Dakota (U.S. Fish and Wildlife Service 2004). Their rodenticide sales information provides only a partial picture of prairie dog rodenticide activities in the region. The South Dakota Department of Agriculture sold approximately 27,000 pounds of zinc phosphide rodenticide in South Dakota and Nebraska in 2000, 43,000 pounds in 2001, 98,000 pounds in 2002, and 135,000 pounds in 2003. At least 16,189 pounds of zinc phosphide rodenticide were purchased from South Dakota and applied in Nebraska in 2002. The above numbers may indicate the potential for impacts to black-tailed prairie dog populations at a statewide scale. If all of the rodenticide purchased in 2003 was applied within the year of purchase at the recommended application rate, approximately 405,000 acres could have been treated that year in South Dakota and Nebraska. The estimated acreage of prairie dog colonies in Nebraska and South Dakota in 2003 was approximately 549,000 acres.

### **Drought and Markets**

Drought results in reduced plant productivity and accelerated expansion and establishment of prairie dog colonies. The combined and cumulative effects of the 2004 drought and related prairie dog colony expansion on livestock forage and crops have also elevated rancher and farmer concerns over prairie dogs in the project area. The long-term depressed farm and ranch economy is also contributing to the increased attention being focused on prairie dogs by landowners and agricultural producers. These are major factors contributing to the increased complaints from landowners about encroachment of prairie dog colonies from national grasslands. These complaints and interest in prairie dog population reductions by



landowners can be expected to continue and may increase if extreme drought conditions continue.

### **Disease**

Plague has never been suspected or confirmed in any prairie dog colonies within the project area, but the potential for plague to occur in the project area cannot be discounted. Plague was confirmed in a prairie dog colony in western Custer County, South Dakota, in September, 2004 near the border of Wyoming and South Dakota. Surveys for additional plague were conducted this last winter in Pennington, Custer, Fall River and Shannon counties with results pending. Prairie dogs are highly susceptible to plague, and it is considered to be a serious threat to the persistence of local prairie dog populations (USDA Forest Service 2001).

Plague is a major factor currently influencing black-tailed prairie dog populations and distribution across much of the range of the species. However, recent information indicates that prairie dog populations are not as vulnerable to the disease as previously thought (U.S. Fish and Wildlife Service 2004). Recent data suggests, in some portions of its range, prairie dog populations affected by plague can recover to near pre-plague population levels within a few years. For example, a 1995 survey across a portion of the Comanche National Grassland indicated approximately 4,500 acres of active prairie dog colonies. A year later in 1996, all of the colonies inspected had experienced total or near total extirpation as a result of a plague epizootic. By 2004, most of the prairie dog populations in these colonies had recovered.

### **Land Use**

Another major factor effecting local and regional prairie dog populations is the conversion of prairie and rangeland to cropland and other uses. The extent of this conversion across the Great Plains is displayed in information presented by Sieg et al. (1999). This information suggests that in the vicinity of the project area, 40 to 60 percent of the rangeland in some areas has been converted to other uses. Although approximately 14.7 million acres of cropland have been enrolled in the conservation reserve program (CRP) on the northern plains (Natural Resources Conservation Service 1996), few of these areas provide suitable habitat for black-tailed prairie dogs.

Prairie dog population declines have also contributed to range reductions of other wildlife species that are closely associated with prairie dog colonies, including black-footed ferret, western burrowing owl, and mountain plover. These species are affected by local and landscape scale changes in the abundance and distribution of prairie dog populations and their colonies. In the vicinity of the project area, rodenticide and rangeland conversion (cultivation) appear to be the major impacts. Reductions in the ranges of these species represents declines in their genetic diversity and therefore in their ability to adapt to environmental change.

### **Vegetation Management**

Management designed to conserve biodiversity depends on habitats and plant communities with varying successional and structural stages, especially at the extremes of the vegetative continuum. LRMP direction prescribes a diversity of habitats with varying successional and structural stages to provide for enhanced biodiversity on the national grasslands. Generally, habitat suitability for prairie dogs and associated species will decline where moderate and

high structure grasslands are desired but will be enhanced where low structure grasslands are prescribed. However, objectives in the LRMP for desired levels of vegetation composition and structure across each national grassland will easily accommodate the current and expected prairie dog populations and colony acreages specified in Table 3-2 for each of the alternatives.

Livestock production from the national grasslands is very important to local agricultural families with national grassland grazing permits. Any increase or decrease in forage for permitted livestock on the national grasslands due to prairie dog management may cause adjustments in herd size or other ranch operations. These adjustments may cause some economic hardship on individual ranches. The effects of any future adjustments in permitted livestock grazing on local economic stability as a result of this proposed action are minor since the proposed action is primarily limited to prairie dog and vegetation management along property boundaries. None-the-less, the Forest Service acknowledges economic impacts to individual private or tribal landowners and managers from prairie dogs and their management.

### 3.15 Other Required Disclosures

National Environmental Policy Act regulations (40 CFR 1502.25a) directs "to the fullest extent possible, agencies shall prepare environmental impact statements concurrently with and integrated with ...other environmental review laws and executive orders." The Forest Service has consulted with the following agencies to ensure compliance with other laws:

- Nebraska and South Dakota State Historical Officers, in accordance with the National Historic Preservation Act (E.O. 11593) for ground disturbing actions in historical places;
- U.S. Fish and Wildlife Service in accordance with ESA implementing regulations for projects with threatened or endangered species;
- Environmental Protection Agency in accordance with the National Environmental Policy Act, 42 U.S.C. 4231, Council on Environmental Quality (CEQ) regulations 40 C.F.R. Parts 1500-1508, and Section 309 of the Clean Air Act (CAA).

The following executive orders and plans have been reviewed for compliance:

**Executive Order 12898, Environmental Justice.** Executive Order 12898 directs each Federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

There is no evidence that the effects attributable to prairie dog movement on federal lands, or the actions outlined in these alternatives, are disproportionately high or adverse on minority populations and low-income populations when compared with the effects upon non-minority or non-low-income populations. A detailed effects analysis can be found in the project record.

**Executive Order 11990, Protection of Wetlands.** Executive Order 11990 directs agencies to avoid to the extent possible the long and short-term adverse impacts associated with the

destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Known major wetland areas (as defined in Sec 6., (c)), have been protected or managed specifically for the protection of wetland resources in past management strategies. There is no evidence that the effects attributable to prairie dog management on national grasslands or the actions outlined in any alternative, would impact wetlands.

**Executive Order 11988, Floodplain Management.** Executive Order 11988 directs agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This proposed action or the activities prescribed in any alternative do not modify or develop floodplains.

**Nebraska National Forest Land and Resource Management Plan.** Appendix I identifies the LRMP direction related to black-tailed prairie dog management activities. Alternative 2 and Alternative 3 (preferred) are compared to this direction for consistency. Where direction is not being met under Alternative 2 or 3, direction is proposed to be deleted or revised under an amendment to the LRMP. This proposed amendment and associated changes can be found in Appendix C. Alternative 1 is the no action alternation and therefore is meeting current LRMP direction.

**South Dakota Black-Tailed Prairie Dog Conservation and Management Plan.** The Forest Service has reviewed the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan (State Plan) in response to the direction stated in the 2002 ROD for the Land and Resource Management Plan (LRMP).

The South Dakota State Plan is organized by objectives and strategies. These items were reviewed by and responded to by the Forest Service and can be found in Appendix H. The Forest Service's response gives concurrence or non-concurrence and rational and/or discussion (where needed) to each of these items either directly or through this FEIS and/or associated Record of Decision (ROD).



## CHAPTER 4. LISTS: INCLUDING LIST OF PREPARERS AND DOCUMENT RECIPIENTS

### 4.1 Contributors

The following people were contributors in the preparation of this final environmental impact statement. We would like to acknowledge the following individuals for their efforts and assistance in developing the Draft and Final EIS: **Administrative Record and associated duties:** Marsha Fish and Carla Loop. **Content Analysis Team:** Jeana Lam-Pickett, Tom Geiser, Charon Geigle, Jan Stojohann, Dennis Pry, Bill O'Dea, Bob Novotny, Jennifer Lemmon, and Ed Welsh. **Content Analysis Team Support:** Marsha Fish, Laura Koenig, Lara Daily, Carla Loop. **Printing and Mailings:** Helen Kent, Laura Koenig, Carla Loop, and Marsha Fish. **Artistic talent and contributions of artwork:** Lynn Hetlet. **Regional Office Review and Support:** Nancy Warren, Joan Friedlander, Peter McDonald, Ken Capps, Dan Nolan, Jerry Freeouff, and Mike Retzlaf.

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<b>Moravek, Glenn</b> Wildlife Biologist	Education: B.S., Fisheries and Wildlife Biology, Iowa State University	Professional Experience: 24 years as a biologist on FS ranger districts in South Dakota and Nebraska; Prior experience with U.S. Forest Service and U.S. Fish and Wildlife Service in Colorado, and with the Iowa Conservation Commission.
<b>O'Dea, William</b> Cartographic Technician	Education: B.A. Agri-Business, Chadron State College	Professional Experience: 3 years, Cartographic Technician, Nebraska National Forest.

<b>INTERDISCIPLINARY (ID) TEAM MEMBERS:</b>		
<b>O'Rourke, Lora</b> Rangeland Management Specialist	Education: B.S. Range Science, Utah State University	Professional Experience: 20 years as a range conservationist; with the Nebraska National Forest since 1989. Prior range experience with the Bureau of Land Management and two years in Nigeria, West Africa.
<b>Perry, William</b> Co-Project Leader, <i>Former District Ranger</i>	Education: B.S. Wildlife/Range Science, New Mexico State University	Professional Experience: 27 years, currently District Ranger on the Buffalo Gap NG; Prior experience with Forest Service, Range/Wildlife Staff on Nebraska, Ashley, Uinta, and Manti/LaSal National Forests.
<b>Sargent, Doug</b> Wildlife Biologist	Education: B.S., Biology, Black Hills State University; M.S., Biology, South Dakota State University	Professional Experience: 11 years, including wildlife biologist on the Bessey and Wall Ranger Districts of the Nebraska National Forest.
<b>Schenbeck, Greg</b> Certified Wildlife Biologist	Education: B.S., M.S. Wildlife Biology, Colorado State University	Professional Experience: 32 years, currently Fish and Wildlife Program Manager, Nebraska National Forest. Other fish and wildlife experience with African Wildlife Foundation, Rachelwood Wildlife Research Foundation, Bureau of Land Management, Colorado Division of Wildlife, and Nebraska Game and Parks Commission
<b>Schumacher, Jerry</b> Public Affairs Specialist	Education: B.A. Social Sciences, Chadron State College	Professional Experience: 17 years, currently Public Affairs Specialist, Nebraska National Forest, 11 years NEPA and Appeals coordinator, Nebraska National Forest.



### INTERDISCIPLINARY (ID) TEAM MEMBERS:

<b>Sidle, John</b> Northern Great Plains TES Coordinator, Certified Wildlife Biologist	Education: B.S. Wildlife Biology and M.S. Wildlife Ecology from Oregon State University and University of Minnesota, respectively	Professional Experience: 28 years, including 8 years as threatened, endangered and sensitive species coordinator for national grasslands. Prior wildlife conservation experience with Peace Corps, multi- lateral banks, and U.S. Fish and Wildlife Service experience in national wildlife refuge management, ecological services, and matters pertaining to the Endangered Species Act.
<b>Weisbeck, Tonya</b> Rangeland Management Specialist	Education: B.S. Environmental Management, South Dakota State University; B.S. Biology (minor in Chemistry), University of Nevada, Las Vegas	Professional Experience: 7 years experience including Interdisciplinary Range/Wildlife, US Forest Service, Nebraska National Forest (Pierre and Wall, SD); Prior experience as Range Technician, US Forest Service, (Wall, SD); and Senior Field Wildlife Biologist, Southern Nevada Environmental, Las Vegas, NV.

## 4.2 Distribution List

The DEIS was made available for review to the following Federal agencies and elected officials, federally recognized tribes, State and local governments and elected officials, organizations, and other individuals.

### Federal Agencies and Elected Officials

Advisory Council on Historic Preservation  
Animal and Plant Health Inspection Service, Wildlife Service  
Badlands National Park  
Bureau of Land Management  
Environmental Protection Agency  
Federal Aviation Administration  
Federal Highway Administrator (Nebraska & South Dakota)  
Fortenberry, Jeff, Nebraska, United States Representative  
Hagel, Chuck, Nebraska, United States Senator  
Herseth, Stephanie, South Dakota, United States Representative  
Johnson, Tim, South Dakota, United States Senator  
LaCreek National Wildlife Refuge  
National Agricultural Library  
Natural Resource Conservation Service  
Nelson, Ben, Nebraska, United State Senator

Office of Environmental Policy & Compliance, Department of Interior  
Osborne, Tom, Nebraska, United States Representative  
Thune, John, South Dakota, United States Senator  
U.S. Army Engineers, Northwestern Division  
U.S. Coast Guard, Environmental Impact Branch  
U.S. Department of Energy  
U.S. Fish and Wildlife Service, Department of Interior

#### **State Agencies and Elected Officials**

Amack, Rex, Director, Nebraska Game and Parks Commission  
Baron, Leland, South Dakota Office of Water Quality  
Carlson, Merlyn, Nebraska Department of Agriculture  
Cooper, John, South Dakota Department of Game, Fish & Parks  
Daugaard, Dennis, Lieutenant Governor of South Dakota  
Dunn, LouAnn, South Dakota Animal Industry Board  
Duxbury, Alexis, North Dakota Department of Game and Fish  
Gabriel, Larry, Secretary, South Dakota Department of Agriculture  
Gale, John, Secretary of State, Nebraska  
Garnos, Cooper, South Dakota House of Representatives  
Gray, Bob, South Dakota Senate  
Healey, Bryce, South Dakota School and Public Lands  
Heineman, David, Governor of Nebraska  
Howie, Gordon, South Dakota House of Representatives  
Jensen, Barry, South Dakota House of Representatives  
Koskan, John, South Dakota Senate  
Landguth, Dennis, South Dakota Department of Transportation  
Lintz, Jim, South Dakota Senate  
Louden, LeRoy, Nebraska Senate  
Olson, Ryan, South Dakota House of Representatives  
Patterson, Roger, Director, Nebraska Natural Resource Department  
Pederson, Gordon, South Dakota House of Representatives  
South Dakota Environmental and Natural Resources Department  
Rounds, Michael, Governor of South Dakota  
Rounds, Tim, South Dakota House of Representatives  
Sattgast, Rich, South Dakota State Auditor  
South Dakota Archeological Research Center  
South Dakota Association of Conservation District  
South Dakota Department of Tourism and State Development  
Two Hawk, Webster, Tribal Government Relations Office for State of South Dakota  
West River Agricultural Center, South Dakota Cooperative Extension District

#### **County, City, Local Governments and Elected Officials**

Black Hills Resource Conservation & Development  
Blaine County Commissioners, Nebraska  
Cherry County Commissioners, Nebraska  
Custer County Commissioners, South Dakota  
Dawes County Commissioners, Nebraska  
Dawes County Extension Service, Nebraska

Eastern Pennington Conservation District  
Fall River County Commissioners, South Dakota  
Hughes County Commissioners, South Dakota  
Jackson County Commissioners, South Dakota  
Jones County Commissioners, South Dakota  
Lyman County Commissioners, South Dakota  
Pennington County Commissioners, South Dakota  
Sioux County Extension, Nebraska  
Sioux County Commissioners, Nebraska  
Stanley County Commissioners, Nebraska  
Thomas County Commissioners, Nebraska  
Upper Niobrara White Natural Resources District, Nebraska

**American Indian Organizations**

Cheyenne River Sioux Tribe  
Cheyenne/Arapahoe Tribes of Oklahoma  
Crow Creek Sioux Tribe  
Eastern Shoshone Tribe  
Flandreau Santee Sioux Tribe  
Grey Eagle Society  
Kiowa Ethnographic Endeavor for Preservation  
Lower Brule Sioux Tribe  
Northern Arapaho Business Council  
Northern Cheyenne Tribe  
Omaha Tribe of Nebraska  
Oglala Sioux Tribe  
Ponca Tribe of Nebraska  
Rosebud Sioux Tribe  
Santee Sioux Nation  
Sisseton-Wahpeton Sioux Tribe  
Southern Arapahoe Tribe  
Southern Cheyenne Tribe  
Spirit Lake Sioux Tribe  
Standing Rock Sioux Tribe  
Three Affiliated Tribes  
Winnebago Tribal Council  
Yankton Sioux Tribe

**Others:**

Approximately 2,000 organizations, media, individuals were sent an executive summary and notification of the DEIS availability.



## CHAPTER 5. RESPONSES TO COMMENTS

The Draft EIS was released for a 45-day comment period on March 4, 2005. Fourteen thousand, three hundred twenty-seven (14,327) letters and emails were received by the end of the comment period on April 18, 2005. Each letter or email was assigned a unique number and logged into a database for future reference and retrieval. Copies of all comment letters are in the Administrative Record and are available for review at the Supervisor's Office in Chadron, Nebraska.

### Comment Analysis

A team was assembled and trained to properly identify and code substantive comments in each comment letter. Original comments were entered verbatim into a database (spreadsheet) along with a unique letter number and other information. Comments that were duplicated in form letters were entered into the database once. The database was then reviewed by EIS team members and line officers, and then, to the extent possible, team members consolidated comments and prepared responses for review by the deciding officer (see Section 5.2).

### 5.1 List of Agencies, Organizations, and Individuals that Commented on the Draft Environmental Impact Statement

This section includes a list of agencies, organizations, and individuals that commented on the DEIS during the public comment period. A letter tracking number has been assigned to each submitted letter received within the comment period. Some letters were received after the 45-day comment period and were not assigned a tracking number. All letters received were read and considered, however, the authors of those received after the comment period do not have eligibility to appeal the decision.

Since the vast majority of the comment letters received on the DEIS were form letters of primarily three varieties, the comments contained within the form letters were coded once. Nearly 500 original comments were coded individually.

The following lists are those entities and individuals that have provided comment letters to the Draft EIS. The following section (5.2) contains the Interdisciplinary Team's responses to those comments.

#### Name and Letter Number:

Abbott, Jennifer, 195  
Alexandrakis, Amanda, 1779  
Almaraz, Andre, 169  
Anderson, Anne, 727  
Anderson, Bradley, 13984  
Anderson, Charles, 145  
Anderson, Ellen, 14137  
Anthes, Steve, Kettle Range Conservation Group, 55  
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Arthur, Jeanne Dancs, 107  
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Baker, Janice, 4283  
Baker, Jocelyn, 32  
Ballard, Dave & Tami, 128  
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Bishoff, Bruce, 2094  
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Claypool, Roberta, 53  
Cleveland, Joel P., 2889  
Cohen, Anita, 11874  
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Corbet, Matthew, 2642  
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Cox, Brian, 1483  
Cox, Sarah, 103  
Criswell, Deborah, 2275  
Crompton, Donna, 1947  
Crooks, Kalli, 102  
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Crusha, Connie Beck, 11283  
Cummins, Robert, 151  
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Dalenberg, Kathryn, 183  
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Dawson, Evelyn, 415  
Day, Elena, 2873  
Deknatel, Charles, 4282  
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Denison, Lou Anna, 2580  
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Diedrich, Dee Ann, 2197  
Diehl, Donna, 669  
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Dinger, Marilyn, 674  
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Dobbs, Melissa, 4325  
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Feldscher, Gloria, 2498  
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Simmons, Jessica, 76  
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Spomer, Leonard, High Plains Wildlife Association, 13297  
Spreeuw, Annette, 3107  
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Stambauagh, Ruth, 1273  
Stanko, Carol, 2533  
Staton, Clara, 205  
Stephens, Karen, 164  
Stevenson, Patricia, 63  
Stewart, Gretchen, 10751  
Stipanovich, Dolores, 13588  
Stoltz, Jim, Wild Wind Records 41  
Stonecipher, Carl, Greater Dacotah Chapter ,  
Safari Club Interational, 9751  
Strader, Ellen, 2067  
Strobel, Joan & Mark, 57  
Strouth, Jenna, 1544  
Sturtevant, Doreen, 202  
Sullivan, Daniel, 2320  
Swanson, John R., 4284  
Sweeney, Katherine Susan, 13048  
Szymanski, Peter, 1959  
Tazzia, Charles, 12071  
Teevan, John 1770, 9742  
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Temple, Suzanne, 2902  
Thalheimer, Steven, 4313  
Thomas, Debra, 14247  
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Torres, Susan, 105  
Treanor, Andreas, 12613  
Trenchik, Jessica, 12332  
Troxel, Tom, Black Hills Regional Multiple  
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Trupp, A. G., 117  
Tubbs, Mark, 9741  
Uhlman, Deborah, 3655, 10865  
Underhill, Joan, 120  
Van Dyne, Jan, 36  
Van Gorden, Mrcia, 99  
Varichak, Michael, 12425  
Vaughan, Lisa Rae, 119  
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Weber, Burton, 192  
Weeks, Margaret, 66  
Weir, Amanda, 166  
Welke, Margaret, 4291  
Werner, Harold, Texas Tech University 4292  
Wever, Karen, 159  
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Whitcher, Walt, 4000  
White, Susan, 1098  
White, Julie, National Tropical Botanical  
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Williams, Mavourneen, 12445  
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Pioneer Cooperative Grazing District, 4002  
Sugarloaf Grazing Association, Inc., 2200  
The Humane Society of the United States, 9745

### **Federal Agencies and Elected Officials:**

United States Environmental Protection Agency, Region VII, 7734  
USDA, Animal and Plant Health Inspection Service, 9746  
USDI, Office of Environmental Policy and Compliance, 11443  
Thune, Honorable John, Senator – South Dakota, (no letter number, received after comment period)

### **State Agencies and Elected Officials**

Amack, Rex, Director, Nebraska Game and Parks Commission, 39  
Cooper, John, South Dakota Game, Fish, & Parks Department, 4355  
Gabriel, Larry, Secretary, South Dakota Agriculture Department, 4355  
Vogt, Lyndon, Upper Niobrara White NRD, 7731  
Louden, Honorable Leroy, District 49, (no letter number, received after comment period)

### **County, City, Local Government and Elected Officials**

Kling, Kim W., Butte County Commissioners, 4305  
Custer County Commissioners, 4303  
Dawes County Commissioners, 7728  
Fall River County Commissioners, 130  
Jackson County Commissioners, 4306  
Mallow, Robert, Meade County Commission, 9739  
Kjerstad, James, Pennington County Commissioners, District 4, 4304  
Sioux County Commissioners, 4302

### **American Indian Organizations**

None received.

## **5.2 Responses to DEIS Comments**

### **COMMENTS RELATED PRIMARILY TO BOUNDARY MANAGEMENT ZONES**

**COMMENT 1: Boundary management zones need to be 1-mile wide to comply with the South Dakota Prairie Dog Conservation and Management Plan.**

**RESPONSE:** In the 2002 Record of Decision for the Revised Land and Resource Management Plan (LRMP), the Forest Supervisor made a commitment to implement the Nebraska and South Dakota state-wide prairie dog conservation plans, to the extent allowable by law and policy, in providing direction for the control of unwanted colonization of prairie dogs onto private lands. In accordance with NEPA, a range of alternatives was developed and considered. Boundary management zones 1 mile in width were a component of Alternative 2. Alternative 3 was developed to respond to public scoping comments and to better achieve the multiple use objectives set forth in the revised LRMP, including the objective to maintain prairie dog populations and colonies on the Fort Pierre and Oglala National Grasslands.

**COMMENT 2: Boundary management zones need to be prairie dog free.**



**RESPONSE:** Neither Alternative 2 or 3 in the EIS or the South Dakota prairie dog plan call for a prairie dog free zone. Instead, each landowner complaint will be evaluated on-the-ground and appropriate action taken to address valid encroachment issues. There will likely be some prairie dog colonies in boundary management zones that are not encroaching onto private land and will not be treated with rodenticide.

**COMMENT 3: Boundary management zones that are 1-mile wide are extreme and would result in near eradication of prairie dogs on some areas.**

**RESPONSE:** For the analyses in the EIS, we assumed all prairie dog colonies in boundary management zones would eventually be treated with rodenticide. Under this assumption, prairie dogs on the Fort Pierre and Oglala National Grasslands would largely be extirpated under the 1-mile boundary management zone prescribed in Alternative 2. (Also see response to Comment 1)

**COMMENT 4: The 1-mile wide exception to the 0.25 and 0.5 mile boundary management zones under Alternative 3 is simply a loophole. Please be more specific and give examples of conditions warranting the exception.**

**RESPONSE:** We disagree. As prescribed in the EIS, use of the 1-mile exception will require additional public notice and environmental analysis. An example of where this exception might be applied is a location where rapid prairie dog population recovery after rodenticide application can be expected because of close proximity of numerous active colonies.

**COMMENT 5: Rodenticide should be applied to every prairie dog colony greater than 50 acres in size, regardless of the boundary management zone.**

**RESPONSE:** None of the alternatives considered in the EIS use colony size as a criterion for rodenticide use. Rodenticide use in a colony that is encroaching on adjoining land would be considered whether the colony is more or less than 50 acres in size.

**COMMENT 6: Boundary management zones should be applied around state school sections.**

**RESPONSE:** The 2002 Multi-State Conservation Plan for the Black-tailed Prairie Dog identified the need to integrate management programs of state and federal agencies and Native American tribal governments. Similarly, the South Dakota Prairie Dog Conservation and Management Plan considered all ownerships as potentially contributing to achieving and maintaining the state-wide colony acreage goal. Furthermore, there are many areas where no significant colony encroachment is occurring or expected on state school lands. An example is state school lands adjacent to the Oglala National Grassland in Nebraska.

**COMMENT 7: Boundary management zones and rodenticide should only be considered during drought conditions.**

**RESPONSE:** This strategy was initially considered by the EIS team. However, such a strategy could likely result in more rodenticide use over the long-term, rather than less. By

implementing strategic management earlier, future encroachment issues and the amount of annual rodenticide use would likely be reduced.

**COMMENT 8: A boundary management zone that requires destruction of adjoining lands as a prerequisite for rodenticide use does not meet the intent of a “good neighbor policy.”**

**RESPONSE:** Alternative 3 provides for rodenticide use if encroachment has not yet occurred but is likely within the next year or two.

**COMMENT 9: Boundary management zones will be ineffective if prairie dog colonies in interior areas are not treated with rodenticide. Interior colonies are the heart of the problem.**

**RESPONSE:** The Forest Service recognizes that prairie dogs disperse from interior as well as boundary colonies and that management of interior colonies is an important component of a comprehensive prairie dog conservation and management strategy. However, the scope of this EIS and decision is limited to colony encroachment along boundaries. Issues regarding management of interior colonies are very complex and would take considerable additional time to evaluate and collaborate with interested agencies, organizations and individuals.

**COMMENT 10: Please disclose the acres of boundary management zone in each management area prescription and evaluate the impacts of the boundary zones on achievement of management area objectives.**

**RESPONSE:** Management areas within national grasslands and forests are prioritized for a particular emphasis or theme. There are 15 management areas listed in Chapter 3 of the revised LRMP. However, only the 3.63 management area prescription for black-footed ferret reintroduction habitat includes LRMP direction that applies specifically to prairie dogs or their management. As a result, there's no reason to address the other 14 management area prescriptions.

**COMMENT 11: There is no scientific basis demonstrating effectiveness of boundary management zones of any width.**

**RESPONSE:** We are uncertain whether the comment is referring to the effectiveness of boundary management zones in addressing the issue of encroachment of individual colonies onto adjoining lands or individual prairie dogs dispersing from national grassland colonies to other existing (or newly established) colonies on adjoining lands. Colony encroachment and prairie dog dispersal are two very different issues, and this EIS and decision addresses colony encroachment issues. Responding to prairie dog dispersal issues is more difficult and problematic since research has demonstrated that prairie dogs can successfully disperse over several miles. Whether there's a 1-mile or quarter mile zone, some prairie dogs will likely succeed in dispersing across these areas, albeit fewer would probably succeed across the wider boundary management zones.

Uses of both lethal and non-lethal tools in boundary management zones are prescribed in the EIS, and there is scientific information available that demonstrates the effectiveness of rodenticide and vegetation management in managing prairie dog populations.

**COMMENT 12: Replace the boundary management zone approach with a requirement to develop site-specific management plans.**

**RESPONSE:** This EIS contains site-specific analyses of the expected effects under each alternative. Also, an on-site evaluation of each encroachment complaint is prescribed under Alternatives 2 and 3, and a management strategy will be determined for each valid complaint. With or without boundary management zones, a site-specific strategy would have to be developed to help ensure short and long-term management effectiveness.

**COMMENTS RELATED PRIMARILY TO PRAIRIE DOG MANAGEMENT TOOLS**

**COMMENT 13: The use of rodenticide is cruel and unnecessary.**

**RESPONSE:** The Forest Service is also concerned about animal welfare and recognizes that lethal animal damage control methods such as shooting and rodenticide are controversial. However, to respond effectively and in a timely manner to encroachment issues usually requires the use of lethal measures, primarily rodenticide. Non-lethal measures such as vegetation management provide long-term, not short-term or immediate results, and by proposing concurrent use of non-lethal management tools, the Forest Service will reduce the amount of lethal measures needed in the future.

**COMMENT 14: Use of rodenticide is a concern because of environmental contamination and risks to people and non-target wildlife species. Risk of aquatic contamination from zinc phosphide rodenticide should be included in the EIS.**

**RESPONSE:** The Forest Service will closely monitor rodenticide application to help ensure that the toxicant is applied according to label specifications. The use of rodenticide and their effects on threatened, endangered and Forest Service sensitive species are analyzed in the EIS and documented in detail in Appendix E of the DEIS and FEIS. Discussion was added to the EIS on the risks of contamination to aquatic habitats and organisms.

**COMMENT 15: Lethal management tools and boundary management zones foreclose on black-footed ferret recovery opportunities.**

**RESPONSE:** We disagree. Provisions included under all the alternatives provide for attainment of the black-footed ferret recovery objectives specified in the 1994 Record of Decision and black-footed ferret reintroduction EIS and the 2002 Record of Decision and revised LRMP. The compatibility of this proposed action with black-footed ferret recovery is evaluated and documented in detail in Appendix E of the DEIS and FEIS.

**COMMENT 16: Rodenticide should only be used after other management tools have been evaluated and determined to be ineffective and only after consultation with the U.S. Fish and Wildlife Service.**

**RESPONSE:** As discussed in our response to Comment 13, non-lethal tools like vegetation management take time to work. To respond effectively and in a timely manner to encroachment issues usually requires the use of lethal measures. We acknowledge that in



some cases, the possibility of a successful landownership adjustment might circumvent the need to use lethal management measures, but generally, landownership adjustments are also considered long-term rather than immediate solution to encroachment issues.

**COMMENT 17: The Forest Service should be liable for damage on private property if they wait until colonies encroach on adjoining lands before using rodenticide.**

**RESPONSE:** According to a Memorandum Opinion from United States District Court, District of South Dakota, Western Division, regarding Civil Case 80-5070 (American Farm Bureau Federation, et al. vs. John R. Block et al), the Forest Service is not legally responsible for damage caused by prairie dogs and is not liable for money damages.

**COMMENT 18: It may take multiple rodenticide applications to prevent prairie dog populations from recovering in treated colonies.**

**RESPONSE:** We concur and this is taken into account in the rodenticide use estimates disclosed in Table 3-2 in the EIS and in the cost estimates for rodenticide use in Appendix D of the FEIS.

**COMMENT 19: Periodic use of rodenticides can actually help maintain the long-term health of prairie dog colonies and associated wildlife populations.**

**RESPONSE:** We agree that this might be possible. However, the scope of this decision is limited to addressing unwanted colonization by prairie dogs, and use of rodenticide in the manner suggested was not considered or analyzed in this EIS.

**COMMENT 20: Rodenticide should be applied to all prairie dog colonies within a quarter mile of county roads.**

**RESPONSE:** We acknowledge that this might further reduce prairie dog dispersal, but the scope of this EIS and decision is limited to encroachment of individual colonies onto adjoining lands.

**COMMENT 21: Rodenticide should be applied to centers of colonies to prevent colony expansion and to increase the effectiveness of boundary management zones.**

**RESPONSE:** When a decision is made to apply rodenticide to an encroachment colony within the boundary management zone, the entire colony, not just the center, will likely be treated.

**COMMENT 22: Use of rodenticide on the national grasslands before October 1 should be allowed.**

**RESPONSE:** To reduce primary poisoning risks to sensitive bird species, as well as other migratory birds, the LRMP provides direction that defers rodenticide applications until October 1. In this manner, most of the migratory birds have migrated out of the area and are not present to ingest grain bait during rodenticide applications. Use of rodenticide prior to October 1 would have unacceptable impacts on non-target wildlife and therefore was not considered in this EIS.

**COMMENT 23: Adjoining landowners should be able to apply rodenticide on national grassland colonies within boundary management zones.**

**RESPONSE:** All use of pesticides on national grasslands and forests has to be evaluated and approved by the Forest Service (Forest Service Manual 2150). It also has to meet all pesticide label and application requirements of the Environmental Protection Agency and state agencies.

**COMMENT 24: Decisions regarding use of rodenticide in complaint areas, including along private inholdings and small isolated tracts, should be made through consensus by officials of the Forest Service, South Dakota Departments of Agriculture and Game, Fish and Parks, affected counties and landowners. This should apply to black-footed ferret habitat as well.**

**RESPONSE:** Encroachment complaints involving private inholdings and small isolated tracts outside Conata Basin will be considered. Incentives and land exchanges will continue to be emphasized for the few tracts in Conata Basin. As indicated in the EIS, the Forest Service makes the final decision regarding the site-specific management strategies to be applied to national grassland colonies in boundary management zones. This will involve coordination with the affected landowner(s), and the Forest Service will consider input from state and county officials as well, as described in Appendix B.

**COMMENT 25: Rodenticide use should be restricted if whooping cranes are observed in an area and should not be resumed until the whooping cranes move out of the area.**

**RESPONSE:** This has been added as a conservation measure common to all alternatives in Section 2.2.5 of the EIS.

**COMMENT 26: Burrow fumigants should be allowed on the national grasslands as a prairie dog management tool.**

**RESPONSE:** To reduce risks to non-target wildlife species, use of burrow fumigants was prohibited by direction in the revised LRMP.

**COMMENT 27: Vegetation management fencing will be ineffective in managing prairie dog colonies and in reducing colony encroachment on adjoining lands.**

**RESPONSE:** We do not imply that any of the prairie dog management tools, including rodenticide, are 100% effective. However, the Forest Service has information and photographic records that demonstrate a high level of effectiveness of relatively tall and dense vegetation reducing encroachment and establishment of new colonies. Therefore, we believe that vegetation management can substantially increase the long-term effectiveness of rodenticide applications and reduce the extent and frequency of follow-up rodenticide treatments. The Forest Service also acknowledges vegetation management may be less effective during extreme drought years and on some of the less productive range sites.

**COMMENT 28: Vegetation management fencing is expensive and who's going to pay for it? Conservation practices funds should not be used for prairie dog management.**

**RESPONSE:** Yes, costs to construct vegetation management fencing are expensive, but rodenticide applications are also expensive. Vegetation management should help reduce the extent and frequency of future re-applications of rodenticide, thereby reducing long-term costs of repeated rodenticide applications.

In response to concerns expressed about the costs and effectiveness of vegetation management fencing, we have reduced our original projections of the amount of future fencing and will be more selective in where it is applied.

Regarding use of conservation practices funds for prairie dog management, the Forest Service's Grazing Permit Administration Handbook (FSM 2209.13) clearly provides for use of these funds to implement any land use practices needed to achieve desired resource conditions as described in land and resource management plans and project-level decisions.

**COMMENT 29: Livestock grazing is a traditional and historic use of national grasslands and should not be reduced for prairie dog management purposes.**

**RESPONSE:** The Forest Service recognizes the importance and significance of multiple uses, including livestock grazing, on the national grasslands and forests. In fact, the Forest Service is mandated by Congress to manage for multiple uses, and in some cases, this results in the need to make adjustments in some uses to accommodate others. At the same time, we need to be as cost effective as possible in the long-term in responding to colony encroachment issues, and this includes concurrent use of rodenticide and vegetation management. Vegetation management along boundaries may require adjustments in livestock grazing.

**COMMENT 30: Livestock grazing on national grasslands in chronic colony encroachment areas should be stopped until sufficient vegetative structure has developed.**

**RESPONSE:** The Forest Service will use livestock grazing as a tool to help manage prairie dog populations in encroachment complaint areas. However, the most appropriate strategies will be determined when the on-the-ground site-specific evaluations are completed.

**COMMENT 31: Vegetation management fencing and associated reductions in permitted livestock grazing are not appropriate in national grassland areas with a range management emphasis (Management Area 6.1).**

**RESPONSE:** There is no direction or guidance described in Chapter 3 of the revised LRMP that would indicate that vegetation management and adjustments in livestock grazing would be inappropriate under Management Area 6.1.

**COMMENT 32: The potential to use livestock grazing to facilitate immediate or rapid re-colonization of prairie dogs in colonies treated with rodenticide needs to be considered.**

**RESPONSE:** When a decision is made to use rodenticide in a prairie dog colony that is or about to encroach on adjoining lands, our intent will be to discourage, not encourage, prairie dog population recovery in the colony.



**COMMENT 33: The proposal to amend the F-2 LRMP Standard regarding livestock grazing modifications during drought should be dropped and remain a standard, not a guideline.**

**RESPONSE:** This standard will not be changed to a guideline.

**COMMENT 34: The Forest Service allowed overgrazing in Conata Basin by both prairie dogs and livestock during the recent drought, which further exacerbated the effects of the drought. Now, there may be a larger reduction in livestock grazing.**

**RESPONSE:** The 2004 drought in Conata Basin was extreme and significantly affected forage availability for both prairie dogs and permitted livestock. This could result in a need to further modify grazing levels as specified in annual operating plans.

**COMMENT 35: Effects of livestock grazing and management during drought on vegetation and prairie dog dispersal and colony expansion need to be considered.**

**RESPONSE:** The potential effects of drought have been adequately considered and evaluated in Chapter 3 of the EIS.

**COMMENT 36: The Forest Service has the authority to reduce livestock grazing as a prairie dog management tool, but there's no record of the agency ever using this tool. Reductions in livestock grazing in those areas where complaints have been filed should be mandatory.**

**RESPONSE:** Significant adjustments in livestock grazing to facilitate the long-term effectiveness of prairie dog management have been made in Conata Basin. This is discussed in Section 3.6.1 of the EIS. Under both Alternative 2 and 3, each landowner complaint will be evaluated on-the-ground and appropriate action taken to address verified encroachment.

**COMMENT 37: There's a double jeopardy in effect. If livestock grazing permittees complain about prairie dogs, the Forest Service may construct vegetation management fencing and reduce livestock grazing. Either way, permittees lose livestock forage to prairie dogs or to vegetation management fencing.**

**RESPONSE:** We acknowledge the potential loss of livestock forage. It will be necessary for the Forest Service to use both lethal and non-lethal management tools to achieve the desired conditions and overall multiple use objectives specified in the LRMP.

**COMMENT 38: Stocking rates for livestock in Conata Basin were reduced in 1978. Prairie dog populations have not been reduced and should be reduced now.**

**RESPONSE:** Alternatives 2 and 3 call for reductions in prairie dog populations in boundary management zones. It is acknowledged that prairie dog populations in most interior colonies will likely expand in the future over current levels, but use of rodenticides in these areas is outside the scope of this decision. Current direction provides for use of non-lethal tools in interior and boundary areas to help slow the rate of future prairie dog colony expansion, but some expansion in these colonies is still expected.

**COMMENT 39:** The Forest Service has not provided a comparison of direct costs of the various alternatives or provided an alternative that looks at various combinations of poisoning and grazing management that would reduce or eliminate future rodenticide costs.

**RESPONSE:** We disagree. The three alternatives clearly include different combinations of lethal and non-lethal management tools, and Appendix D in the EIS provides cost estimates for implementing each alternative.

**COMMENT 40:** There is substantial evidence from the historical record that using rodenticide without also managing livestock grazing will only result in future prairie dog encroachment and more poisoning (Forrest and Luchsinger, in press). Unless livestock grazing management is made an explicit part of the individual site plans described under the proposed alternative, annual rodenticide use will continue to be needed into the foreseeable future.

**RESPONSE:** We believe there will likely be encroachment and a need for rodenticide use in the future, with or without integrated livestock grazing and vegetation management. The question is how much encroachment and subsequent rodenticide use will occur in the future. If livestock grazing and vegetation management is successfully integrated with rodenticide use, the rate of prairie dog population recovery in colonies treated with rodenticide and the annual expansion rate of active colonies in boundary management zones will be reduced. The rate of establishment for new colonies in boundary management zones will also be reduced, and when combined, these factors should reduce future rodenticide use. In the long run, use of other non-lethal methods such as land ownership adjustments are also expected to reduce the need for rodenticide.

**COMMENT 41:** Livestock grazing adjustments are real long-term solutions for reducing encroachment, yet more NEPA is required to make those adjustments. Yet, shooting and live-trapping can be done without any additional NEPA. Why?

**RESPONSE:** Appendix B provides the project level implementation criteria under each Alternative to determine when decisions by the Forest Service concerning various management actions, including prairie dog shooting or live-trapping, may or may not require NEPA procedures. Livestock coordination through annual operating instructions may not require additional NEPA procedures. Additional site-specific analysis will be necessary to conduct allotment management planning.

**COMMENT 42:** Shooting can be used as a tool to help manage prairie dogs and, at the same time, contribute to the local economy. Shooting should be allowed in Conata Basin.

**RESPONSE:** The management priority on the national grasslands in Conata Basin is black-footed ferret recovery and not economic development. However, Alternative 2 and 3 provide some opportunity for closely regulated shooting in boundary management zones in Conata Basin. The primary purpose of the shooting would be as a tool to help slow expansion of colonies that could eventually expand across property boundaries.

**COMMENT 43: All of the national grasslands, including black-footed ferret habitat, should be open to recreational prairie dog shooting.**

**RESPONSE:** As stated in the EIS, the Forest Service defers to the state regarding regulation of prairie dog shooting outside black-footed ferret reintroduction habitat. Under Alternatives 2 and 3, the current Forest Service shooting restrictions in the Conata Basin black-footed ferret habitat are modified to include the opportunity for some regulated prairie dog shooting in boundary management zones.

**COMMENT 44: There is no evidence that prairie dog shooting can be effective in reducing colony encroachment on adjoining lands.**

**RESPONSE:** There is some research indicating that prairie dog shooting can reduce prairie dog densities within colonies. Reduced prairie dog densities within colonies could result in reduced annual expansion rates and encroachment on adjoining lands, but to our knowledge, this has not been confirmed through research. This is acknowledged in the analysis of effects presented in Chapter 3 of the FEIS.

**COMMENT 45: Prairie dog shooting is inhumane.**

**RESPONSE:** (See response to Comment 13)

**COMMENT 46: Lead fragments from prairie dog shooting pose risks of environmental contamination and poisoning of prairie dog scavengers and predators, including black-footed ferrets.**

**RESPONSE:** These risks are evaluated and disclosed in Appendix E of the DEIS and FEIS.

**COMMENT 47: Shooting scares prairie dogs and makes them more difficult to observe.**

**RESPONSE:** Shooting does appear to make prairie dogs more wary of humans. However, there are colonies within Conata Basin and the nearby Badlands National Park where shooting is prohibited.

**COMMENT 48: The Forest Service should restrict prairie dog shooting in areas other than just black-footed ferret habitat.**

**RESPONSE:** The Forest Service defers to the state wildlife management agencies regarding shooting outside designated black-footed ferret reintroduction habitat.

**COMMENT 49: Prairie dog shooting restrictions as prescribed for the Smithwick black-footed ferret habitat in the revised LRMP should be implemented.**

**RESPONSE:** Shooting restrictions would be implemented when progress is made in initiating a cooperative ferret reintroduction plan. This is one of the changes proposed under Alternatives 2 and 3 in Appendix C of the EIS.

**COMMENT 50: The Forest Service fails to describe how it would manage or regulate prairie dog shooting in selected areas.**



**RESPONSE:** This is discussed in Sections 2.2.2 and 2.2.3 of the EIS for Alternatives 2 and 3, respectively.

**COMMENT 51:** The Forest Service is helping reduce prairie dog populations on adjoining private lands which, in turn, will funnel more prairie dog shooters to public lands. Ecological values associated with prairie dog colonies should be the priority on public lands, not recreational prairie dog shooting.

**RESPONSE:** We agree that ecological values associated with prairie dog colonies are important, but we are unable to predict how the reductions in prairie dog colony acreages on national grasslands in boundary management zones and the possible acreage reductions on adjoining private and tribal lands will affect the number and distribution of shooters.

**COMMENT 52:** There's no data presented that suggests lethal methods are necessary and sufficient to address complaints from adjacent landowners.

**RESPONSE:** Rodenticide applications to label specifications usually result in 90% or more reduction in prairie dogs. However, depending on the proximity of other active prairie dog colonies, prairie dog populations in treated colonies may recover to near pre-treatment levels in 3 or 4 years (breeding seasons). This may require a re-application of rodenticide. When vegetation management is applied in addition to rodenticide, re-population rates are typically reduced, thereby extending the life of the rodenticide treatment.

**COMMENT 53:** Where would live-trapped prairie dogs be released?

**RESPONSE:** They would be released only in interior areas of national grasslands away from private and tribal lands. The amount of live-trapping and re-location is anticipated to be minimal.

**COMMENT 54:** Why is there less live-trapping of prairie dogs under Alternative 2 than 3?

**RESPONSE:** Rodenticide use is expanded under Alternative 2 and the need or opportunity for the more expensive live-trapping is reduced.

**COMMENT 55:** Costs for live-trapping prairie dogs should include costs for evaluating the suitability of the release sight.

**RESPONSE:** Costs are not presented in Appendix D for live-trapping because its use will likely be minimal and difficult to quantify at this time.

**COMMENT 56:** Site specific plans, outlining how lethal and non-lethal management tools will be applied, should be prepared for each complaint area within boundary management zones. Rodenticide should not be considered or applied until site specific plans are completed.

**RESPONSE:** This EIS contains site-specific analyses of the expected effects under each alternative. Under Alternatives 2 and 3, each complaint will also receive an on-site evaluation to determine the validity on the complaint and to identify the appropriate management tools and strategy for the site.

**COMMENT 57:** Reference is made in the EIS to "rapid assessments" for landownership adjustment opportunities. A definition for "rapid assessment" would be helpful and should be included in the glossary.

**RESPONSE:** In this EIS, it simply means that a quick feasibility analysis would be done by looking at the intermingled distribution of national grassland parcels and properties owned by the respective landowner. The extent of intermingling may suggest the possibility of a landownership adjustment, if the landowner is willing to consider an exchange.

#### **COMMENTS RELATED PRIMARILY TO FERRETS AND BIODIVERSITY**

**COMMENT 58:** The LRMP establishes black-footed ferret recovery as the top priority in Conata Basin, and management should be designed to exceed, not just meet, minimum habitat thresholds. This area is extremely important to the national ferret recovery program because of the absence of plague.

**RESPONSE:** The minimum habitat threshold is set at the level believed necessary to support a self-sustaining ferret population. It does not represent a marginal level of habitat suitability for black-footed ferrets.

**COMMENT 59:** Black-footed ferrets should not be removed and relocated from Conata Basin to other reintroduction areas if it causes minimum thresholds not to be met and results in subsequent reductions in rodenticide use.

**RESPONSE:** The minimum thresholds described under Alternatives 2 and 3 are habitat thresholds, not population thresholds. Decisions to remove kits from the Conata Basin experimental ferret population for relocation to other reintroduction sites are made by the U.S. Fish and Wildlife Service, not the Forest Service, and do not affect habitat thresholds.

**COMMENT 60:** More information is needed on why the 5,130 acres of the Conata Basin black-footed ferret reintroduction habitat is being reallocated to Management Area 6.1. For example, what are the current and potential prairie dog colony acreages in this area? Why was M.A. 6.1 chosen over other management prescriptions?

**RESPONSE:** The reason for the change in management area prescription for this area is explained in Section 2.2.3 of the EIS. There was approximately 308 acres of prairie dog colonies in the affected area in 2004. The potential prairie dog acreage is approximately 2,500. M.A. 6.1 was chosen as the alternative prescription because this area is similar to the adjoining areas and allocating the entire area to MA 6.1 will provide for more effective management of this portion of the national grassland.

**COMMENT 61:** Too much emphasis is being placed on the Liveri and Perry 2005 report. This report is not based on years of research and more information is needed. It's possible that a smaller more dispersed prairie dog population would be better for ferrets, wildlife and cattle grazing.

**RESPONSE:** It is the best information currently available, and in our opinion, we are fortunate to have this level of information to help guide the ferret recovery program in Conata Basin.

We are unaware of any scientific evidence supporting smaller and more dispersed prairie dog populations benefiting ferrets and wildlife. A top ferret expert suggests that ferrets may suffer the following consequences as prairie dog colonies become smaller and their spacing more distant: (1) a reduction in gene flow, (2) a decreased ability to recolonize prairie dog colonies vacated due to stochastic events, (3) a decrease in their ability to disperse to new colonies following initial reintroduction or to colonize newly established colonies, and (4) a lowered mating success.

The management direction applicable to MA 3.63 that was established in the 2002 LRMP is not within the scope of this decision.

**COMMENT 62: The unique value of the Conata Basin area for black-footed ferret recovery and the considerable public and private funds that have supported the reintroduction program should not be compromised.**

**RESPONSE:** The Forest Service recognizes the substantial contributions to the ferret recovery effort from multiple conservation agencies, private organizations and individuals. As the land and resource management agency for this area, the Forest Service also has a substantial investment in the recovery program and remains fully committed to see this program succeed. A major factor in determining the long-term success of this program will be the acceptance by the landowners who have lands intermingled with the public lands in Conata Basin. This proposed action is our response to the landowners concerns about prairie dog encroachment on their lands in this area, which may be in the best long-term interest of the ferret recovery program.

**COMMENT 63: Before going any further, the Forest Service should contact the adjoining landowners to see if the Smithwick area of the Buffalo Gap National Grassland is a viable black-footed ferret reintroduction site.**

**RESPONSE:** The Smithwick area has already been allocated as black-footed ferret reintroduction habitat in the recently revised LRMP. Revision of the LRMP involved a major public involvement effort. Any additional actions related to prairie dog shooting or black-footed ferret reintroduction in this area will be deferred until progress is made initiating a cooperative ferret reintroduction plan for the area, and this will give the adjoining private landowners an opportunity for involvement and participation.

**COMMENT 64: Ferrets do better in smaller and scattered prairie dog colonies.**

**RESPONSE:** See response to comment #61.

**COMMENT 65: Monitoring of black-footed ferrets and prairie dogs needs to be a high priority.**

**RESPONSE:** We agree and a conservation measure common to all alternatives that further addresses the inventory and monitoring protocols for black-footed ferrets and black-tailed prairie dogs in Chapter 4 of the LRMP has been added to Section 2.2.5 in the FEIS.



**COMMENT 66: The numbers of black-footed ferrets in Conata Basin reported by the Forest Service have not been consistent and cannot be trusted or relied upon without verification by outside parties.**

**RESPONSE:** Ferret populations are monitored annually. Monitoring information is summarized in reports that are available for public review at the Wall Ranger District Office. Monitoring protocols include the use of current technology and individually marked black-footed ferrets, resulting in fairly accurate population estimates. We acknowledge that some ferrets may go undetected, but this is common to most surveys of wildlife populations.

**COMMENT 67: Given the poor vegetation conditions in prairie dog colonies in Conata Basin, it is obvious that black-footed ferrets alone cannot keep the prairie dog populations in balance with the available forage. Other management practices need to be implemented within these colonies.**

**RESPONSE:** The Forest Service has not suggested that black-footed ferrets can prevent prairie dog populations from expanding, and use of other management tools to prevent unwanted colonization onto private land are clearly prescribed in the proposed action.

**COMMENT 68: Why should the “non-essential,” experimental population of black-footed ferrets in Conata Basin be expanded?**

**RESPONSE:** We’re unsure about this comment. If it is referring to the size of the non-essential experimental population area for the Conata Basin/Badlands ferret population, there is no proposal to increase it. If the comment is referring to increases in the ferret population itself, this proposed action does not call for an increase in the ferret population. This proposed action is limited to addressing the issue of encroachment. We acknowledge that direction in the revised LRMP increased the amount of reintroduction habitat available on the national grassland for the non-essential experimental ferret population.

**COMMENT 69: Black-footed ferrets should not be reintroduced into areas outside Conata Basin.**

**RESPONSE:** The Smithwick black-footed ferret reintroduction habitat has already been allocated in the revised LRMP. The U.S. Fish and Wildlife Service would have to approve the actual ferret reintroduction into this habitat area.

**COMMENT 70: Are there currently black-footed ferrets on the Fort Pierre National Grassland? Map 10 in the EIS suggests that they do.**

**RESPONSE:** The ferret observations depicted on the map for the Fort Pierre National Grassland are past observations, and no known ferrets or ferret populations are known to currently occur on or near the grassland. Also, the U.S. Fish and Wildlife Service has block-cleared the counties in this area for black-footed ferret surveys, indicating that the agency is reasonably confident that there are no wild extant ferret populations in the area.

**COMMENT 71: There’s no data presented that indicates prairie dogs on the Oglala and Ft. Pierre National Grasslands are not needed for ferret recovery.**

**RESPONSE:** Neither the Fort Pierre or Oglala National Grassland was identified as black-footed ferret reintroduction habitat in the revised LRMP. However, each national grassland was identified for development of a prairie dog colony complex. The primary purpose of this direction was to provide for sustainable prairie dog populations and other associated wildlife species over the long-term. Although there is no intent or plans at this time, it is possible that these areas could be allocated as ferret reintroduction habitat in the future.

**COMMENT 72:** In consideration of the enormous wildlife resource values represented by large prairie dog colony complexes, the percentage of the Nebraska National Forest predicted to be occupied by prairie dogs in 2012 is reasonable.

**RESPONSE:** Thank you for your comment.

### **COMMENTS RELATED PRIMARILY TO DAMAGE**

**COMMENT 73:** Prairie dogs decrease range condition and damage vegetation to the extent that it will not be able to recover. They also encourage noxious weed invasion.

**RESPONSE:** Section 3.6 of the EIS includes a summary of the effects of prairie dog foraging and clipping on rangeland vegetation, and a more detailed discussion is in the Rangeland Management Specialist Report that is maintained as part of the project record. A discussion on noxious weeds has also been added to the EIS. It is possible that re-establishment of native perennial vegetation on some sites may be slow and re-seeding (range renovation) could help accelerate re-vegetation.

**COMMENT 74:** The FEIS needs to include a detailed analysis of agricultural and forage production with and without prairie dogs.

**RESPONSE:** This is fully disclosed in the Rangeland Management Specialist Report in the project record and summarized in Section 3.6 of the EIS.

**COMMENT 75:** Long-term drought, not prairie dogs, is responsible for the decline in available grass. Killing prairie dogs will not reverse the effects of drought.

**RESPONSE:** A combination of factors including drought, prairie dog foraging and clipping, and livestock grazing are undoubtedly contributing factors to the substantial reduction in grassland vegetation observed in some areas during the recent drought. The primary purpose of this proposed action is to reduce prairie dog colony encroachment on adjoining lands, and both prairie dog population and livestock reductions along boundaries are proposed to help reduce encroachment, both on a short and long-term basis.

**COMMENT 76:** Prairie dogs increase bare soil, resulting in an increase in both wind and water erosion. This erosion could result in prairie dog manure, silt, and mud contaminating domestic wells. The Forest Service needs to do air and water quality studies to determine if the Clean Water Act is being violated by allowing uncontrolled growth of prairie dog colonies. The Forest Service should also issue a supplementary EIS to address cumulative effects on water quality, especially for the Cheyenne River watershed.

**RESPONSE:** The Forest Service recognizes that prairie dog foraging, clipping and burrowing influences soil erosion rates and has addressed the air and water issues in Chapter 3 of the EIS. Although soil erosion is an important consideration, we do not share the concern over a possible violation of the Clean Water Act (CWA). CWA addresses erosion that is caused from human-related activities, and black-tailed prairie dogs are a native wildlife species and part of the natural environment.

**COMMENT 77:** The Forest Service acknowledges that soil and prairie dog relationships and interactions are poorly studied and understood. Why insist on forging ahead with so many acres of prairie dog colonies before the consequences can be thoroughly studied and evaluated.

**RESPONSE:** This proposed action is limited to reducing prairie dog populations along boundaries in selected areas that are encroaching on adjoining lands. Other prairie dog management direction is in the revised LRMP.

**COMMENT 78:** It is critical to understand prairie dogs' impact on soils and water, not just to assume their impact is negligible compared to croplands. Just because they may not contribute as much to sedimentation and particulate matter in the air as cultivated farmland, the impact of prairie dogs should not be discounted.

**RESPONSE:** We have not discounted the impact of prairie dogs and clearly acknowledge in the EIS that prairie dogs can contribute to soil erosion problems at localized sites, especially during drought.

**COMMENT 79:** There should be reclamation plans.

**RESPONSE:** A reclamation strategy could be part of the site-specific evaluation of an encroachment area if the on-site conditions warrant those types of measures. Nothing in this proposed action precludes reclamation strategies, if necessary. Thank you for your comment.

**COMMENT 80:** The EIS does not explain the reduction in number or complete disappearance of species like long-billed curlew, sharp-tailed grouse, pronghorn, deer and grasshoppers from Conata Basin. Also, the burrowing owl was sighted more times outside of the prairie dog colonies.

**RESPONSE:** Effects of each alternative on long-bill curlews and burrowing owls are described in Appendix E of the DEIS, and effects on sharp-tailed grouse, a management indicator species, are discussed in Section 3.8 of the EIS. Effects on pronghorn are summarized at the end of Section 3.8.2 in the EIS. It is highly unlikely that deer populations are or will be significantly affected by the current or projected prairie dog populations because deer mostly utilize woody and/or steep to rolling habitats, not prairie dog colonies. We have insufficient information to assess effects on grasshoppers and invertebrate populations.

**COMMENT 81:** Prairie dogs dig large holes which can be dangerous for livestock and humans using the area.



**RESPONSE:** We are unaware of any human injuries being attributed to prairie dog holes, and although it doesn't appear to be very common, potential injuries to livestock cannot be ruled out.

**COMMENTS 82: Prairie dogs reduce the forage available to livestock and other large grazers.**

**RESPONSE:** The effects of prairie dogs on rangeland vegetation and forage are summarized in Section 3.6 in the EIS and in the Rangeland Management Specialist Report that is maintained in the project record.

**COMMENTS RELATED PRIMARILY TO LAW, REGULATION AND POLICY**

**COMMENT 83: If the Forest Service follows the South Dakota prairie dog plan, it will be unable to meet its responsibilities under the Endangered Species Act.**

**RESPONSE:** Alternative 2 in the EIS most closely follows the South Dakota prairie dog plan. However, provisions were made in the alternative that prevents prairie dog populations and colonies being reduced below what are believed to be the minimum habitat threshold needed to sustain a ferret population over the long-term. Therefore, the Forest Service would continue to meet its responsibilities under ESA under all Alternatives.

**COMMENT 84: The Forest Service is violating the Endangered Species Act and SDCL 41-11-15, as it applies to the black-footed ferret.**

**RESPONSE:** The U.S. Fish and Wildlife Service has concurred with the Forest Service's Biological Assessment for threatened and endangered species. This concurrence documents compliance with the Endangered Species Act. SDCL 41-11-15 is binding to the South Dakota Departments of Agriculture and Game, Fish and Parks, not the U.S. Forest Service. However, the Forest Service is certainly supportive of several of the provisions in the law.

**COMMENT 85: The national grasslands should be managed as intended by the Act that created them. They are to be managed in a manner that maintains and improves soil and vegetative cover and demonstrates sound principles of land use.**

**RESPONSE:** Title III of the Bankhead Jones Farm Tenant Act has been amended several times by Congress since 1937. In 1962, Congress added "protecting fish and wildlife" to the Act, and since prairie dogs are part of the native fauna on the national grasslands, their conservation on these lands is certainly appropriate. Also, the original Act references the need to "preserve natural resources", and there again, there's no reason to suspect that this excludes prairie dogs and other associated native wildlife. The complex challenge before us is how to conserve and manage prairie dogs and associated species, while still meeting the intent of other provisions in the Act, as well as those in many of other laws and regulations that now apply to the national grasslands and their management.

**COMMENT 86: The Fall River County Prairie Dog Conservation Act should be included as an alternative or mentioned as an alternative considered, but eliminated**

**from detailed study. It is our belief that all three alternatives should be discarded and the Fall River Plan adopted. Ignoring the Fall River Act violates federal law.**

**RESPONSE:** The Fall River Act is now listed as an alternative considered but eliminated from detailed study in the EIS.

**COMMENT 87: The Fall River County Threatened and Endangered Species Process needs to be addressed in the EIS.**

**RESPONSE:** The scope of this EIS and decision is limited to reducing encroachment on adjoining lands, and the issue of allocating black-footed ferret habitat on the national grasslands near Smithwick has already been addressed through the recent LRMP revision process. The appropriate time to present the Fall River process is when and if the U.S. Fish and Wildlife Service eventually initiates a process to develop a cooperative black-footed ferret reintroduction plan for the Smithwick area.

**COMMENT 88: Failure to consider minimum range condition as addressed in the Fall River County Prairie Dog Conservation Act is a violation of NEPA and NFMA.**

**RESPONSE:** Criteria are prescribed in the EIS that identify those conditions where rodenticide and other management tools can be applied to reduce colony encroachment on adjoining lands. Minimum range condition in national grassland colonies is not one of the rodenticide criteria for boundary management zones.

**COMMENT 89: The narrow purpose and need of the EIS violates the settlement agreement and court order that dismissed the case last fall. It is so narrowly drawn as to limit the range of alternatives to those complying with the State Prairie dog Plan and does not meet the requirement for a reasonable range of alternatives.**

**RESPONSE:** We disagree. A broad range of alternatives are presented and evaluated, and they range from use of mostly non-lethal tools (Alternative 1) to a heavy reliance on rodenticide (Alternative 2). Alternative 3 is an intermediate option that prescribes the use of both lethal and non-lethal management tools in boundary management zones.

**COMMENT 90: The EIS should disclose how the proposed reduction of prairie dogs on private and federal lands will shift responsibility for the prairie dog ecosystem to Native Americans. If the FS accepts that prairie dogs harm livestock forage production, then this shift is a financial hardship for Native Americans and must be disclosed pursuant to Environmental Justice directives.**

**RESPONSE:** The South Dakota prairie dog plan has separate goals for tribal and non-tribal lands, so we do not see a relationship between the two. Also, the South Dakota tribes were on our mailing list and none of the South Dakota tribes commented on the DEIS or on this matter.

## **OTHER COMMENTS**

**COMMENT 91:** The FS trivializes the economic benefits that the county (Fall River) derives from ranching. Twenty percent of all cattle run on the federal lands. Approximately \$13,700,000 is generated from federal land grazing. Also, there will be so many prairie dogs that some ranching operations in the county will be forced out of business.

**RESPONSE:** The effects on permitted livestock grazing from the proposed action were determined at the scale of the individual national grassland, not county. However, if you assume all livestock grazing reductions due to vegetation management fencing on the entire Buffalo Gap National Grassland (Table 3-6 in the FEIS) under the preferred alternative were to occur in Fall River County, there would be a loss of approximately \$60,800, or 0.4% of the \$13,700,000 value. Obviously, the actual reduction in Fall River County would be much less than 0.4%. This is figured on a maximum potential reduction of 3,900 AUMs and the RPA market value of \$15.59 per AUM.

**COMMENT 92:** Federal grazing permittees are concerned that livestock grazing will be reduced as a result of prairie dog colonization on National Grasslands. Permittees in Conata Basin will be most affected. Because they have a right to graze on the national grasslands, they should be compensated for reductions.

**RESPONSE:** A reduction of AUMs will occur on a temporary basis under all alternatives as vegetative management fencing is constructed. The effects of the management fencing on annual livestock grazing levels are summarized in the FEIS Tables 2-2, 2-3, and 2-4. The Forest Service acknowledges that large prairie colonies complexes are and will be located in Conata Basin and adjustments in livestock grazing will be more extensive in the Basin.

Livestock grazing permits are a privilege, and should not be construed to be a property right. According to a Memorandum Opinion from United States District Court, District of South Dakota, Western Division, regarding Civil Case 80-5070 (American Farm Bureau Federation, et al. vs. John R. Block et al), the Forest Service is not liable for money damages associated with prairie dog colonies on federal or private lands.

**COMMENT 93:** Studies have consistently failed to demonstrate that prairie dogs have an adverse effect on cattle production. In fact, cattle often prefer grazing in prairie dog colonies. This is likely due to the higher protein content and greater digestibility of forage in colonies.

**RESPONSE:** Research on this subject is complex, seemingly contradictory and often confusing. This is discussed further in Section 3.6.2 in the EIS.

**COMMENT 94:** Local, not national, livestock numbers should be used in the EIS analyses.

**RESPONSE:** Local numbers were used in Section 3.10.2 of the EIS to determine the percent of total employment dependent on livestock production.



**COMMENT 95: Movement of prairie dogs from federal lands onto adjoining lands imposes a hardship on private landowners, and it is not fair that private landowners should have to spend time and money to get rid of prairie dogs.**

**RESPONSE:** Prairie dogs are native wildlife that are very mobile and move to and from adjoining lands and to and from federal lands. This purpose of this proposed action is to reduce encroachment from the national grassland onto adjoining lands. We recognize the contentious nature of this issue and the conflicting public opinions about how the Forest Service should respond to this issue.

**COMMENT 96: "Encroachment" needs to be better defined and the same definition should be used throughout the EIS.**

**RESPONSE:** As indicated in Chapter 2 of the EIS, encroachment in Alternative 2 will be interpreted as defined in the South Dakota prairie dog plan. Under Alternative 3, encroachment is clearly defined as "a national grassland colony that extends across a private or tribal property boundary or would likely cross a property boundary within 1 to 2 years".

**COMMENT 97: What prairie dog colony acreage is being used for "baseline"? The 1996-97 acreages are out dated and more current information should be used.**

**RESPONSE:** Prairie dog management direction in the revised LRMP and 2002 Record of Decision was based on the 1996-97 colony acreages. Because this proposed action involves an amendment to the revised LRMP and 2002 Record of Decision, the 1996-97 acreage remains the baseline for the analyses in this EIS. However, for purposes of describing the affected environment, the current (2004) colony acreages are used.

**COMMENT 98: Without a state prairie dog plan to consult, how will you approach prairie dog management along NFS boundaries in Nebraska? Since Nebraska does not have a plan, the national grasslands and forests in Nebraska should not be included in this EIS and decision, and current direction should be retained.**

**RESPONSE:** The State of Nebraska could develop a prairie dog management plan at a later date, and we will certainly consult such a plan at that time to determine if some modifications in management direction are warranted. Also, as we begin to conduct site-specific management plans for encroachment areas, state personnel can certainly provide input at that time.

**COMMENT 99: Rodenticide has not been used on the Fort Pierre National Grassland for over 15 years. Since there is not a prairie dog problem on the national grassland, it should be removed from the EIS and decision.**

**RESPONSE:** There are some areas on the Fort Pierre National Grassland where encroachment is occurring, and encroachment issues could increase if extended drought conditions occur in the future.

**COMMENT 100: The goal should be maintaining current prairie dog colony acreages in Conata Basin.**

**RESPONSE:** When considering current colony acreages in the Basin, Alternative 1 essentially meets the recommended goal. When considering the projected acreage in 2012, Alternative 2 comes the closest to meeting the goal suggested in the comment.

**COMMENT 101: Reducing prairie dog populations on federal lands will make it more difficult to meet the acreage goals in the South Dakota prairie dog plan.**

**RESPONSE:** It could result in a need for additional acreage on other public or private lands but that would depend on the extent of departure between the existing acreage and the State's goal. For example, if the existing acreage at any point in time far exceeded the state goal, loss of colony acreage on the national grasslands might have no effect on meeting the goal acreage.

**COMMENT 102: The Forest Service should manage prairie dogs independent of the South Dakota prairie dog plan, which is grossly inadequate from a conservation perspective.**

**RESPONSE:** Alternatives 1 and 3 are different from the South Dakota plan, which is mostly incorporated in Alternative 2.

**COMMENT 103: The Forest Service is managing for a disproportionate share of prairie dog colonies on the national grasslands.**

**RESPONSE:** The Record of Decision will identify a desired range of colony acreages for the national grasslands in South Dakota and Nebraska. Those ranges are 18,000 to 26,900 acres for South Dakota and 1,000 to 1,800 acres for Nebraska. Federal lands contribute to and are part of South Dakota's desired acreage goal, but a specific acreage goal for federal lands was not included in their prairie dog plan. A statewide acreage goal has not been established for Nebraska. Also, it is not uncommon across the nation for public lands to provide a disproportionate share of habitat for threatened and endangered species and other at risk species.

**COMMENT 104: It's especially important to maintain prairie dogs as a management indicator species on the Fort Pierre and Oglala National Grasslands because they are considered plague free and important for conservation of prairie dogs and other associated wildlife. What species would replace prairie dogs as a MIS?**

**RESPONSE:** Alternatives 1 and 3 would maintain the prairie dog as a MIS on Fort Pierre and Oglala National Grasslands. Under Alternative 2, prairie dog would be removed as a MIS for those units without replacement.

**COMMENT 105: There is a need for more public involvement at the local level.**

**RESPONSE:** There have been multiple opportunities and a considerable amount of public involvement at the local level on the prairie dog issue. These opportunities have included the recent revision process for the LRMP, the Notice and Intent and DEIS for this proposed action, and the recent public involvement efforts for the Nebraska and South Dakota prairie dog management plans. There will also be additional involvement opportunities as site-

specific evaluations are completed by the Forest Service for individual encroachment complaint areas.

**COMMENT 106: Management of interior colonies on national grasslands needs to be addressed.**

**RESPONSE:** This was addressed in the revised LRMP and is outside the scope of this EIS.

**COMMENT 107: Private in-holdings have no protection and must be addressed. Failure to effectively manage prairie dogs will eventually lead to unconstitutional takings of private property, and landowners should be compensated by the government.**

**RESPONSE:** None of the alternatives suggest any management actions preclude access, uses, or options of uses of private lands. (Also see response to Comment 17)

**COMMENT 108: Time frames for responding to encroachment complaints from landowners should be established.**

**RESPONSE:** The Forest Service recognizes the importance of timeliness in responding to encroachment complaints. However, there's a variety of factors beyond our control that affect the availability of our staff. For example, staff may be called to assist in wildfire suppression or other priorities away from their local duty stations. For this reason, we are not going to commit to a designated time frame for responding to encroachment complaints. However, we will do our best to complete our annual on-site evaluations in sufficient time to plan for rodenticide applications that will likely commence in October of each year.

**COMMENT 109: There is no reason to spend public money fixing a problem on private land. The landowners can undertake their own measures if they cannot live with the prairie dogs on their land.**

**RESPONSE:** To clarify, the Forest Service is not spending public money managing prairie dogs on adjoining private or tribal lands. It is spending federal funds to manage prairie dogs on national grasslands that border private or tribal lands, and where encroachment complaints from the neighboring landowners have been received. Individual State laws may provide for expenditure of their funds for animal damage on private lands.

**COMMENT 110: The national grasslands are public lands, not private property, and the priority for managing them should be to protect wildlife for future generation and not privately owned livestock.**

**RESPONSE:** Federal laws, regulations and policies mandate that the Forest Service manage national grasslands for multiple uses and values, including wildlife and livestock grazing. This does not imply that every acre of national grassland has to accommodate each multiple use or value. However, the Endangered Species Act prioritizes conservation and protection of threatened or endangered species where conflicts arise. Also, direction in the LRMP identifies the mix and priorities for the individual national grasslands and forests determined to be most appropriate under the various laws, regulations and policies.



**COMMENT 111:** We do not support any of the alternatives because they fail to address many of the important issues, including water and air quality, range condition, watershed protection, and wildlife habitat.

**RESPONSE:** We disagree. All of these issues are addressed for the boundary management zones in Chapter 3 of the EIS.

**COMMENT 112:** There should be a section in the EIS discussing water resources and water quality impacts (or their absence) to water bodies and subsurface aquifers.

**RESPONSE:** Discussions on water quality impacts have been expanded in Section 3.3 of the EIS. We do not anticipate any impacts on subsurface aquifers from this proposed action.

**COMMENT 113:** From a fiscal and ethical viewpoint, it's hard to rationalize anything but a minimal effort towards managing prairie dogs.

**RESPONSE:** There are multiple considerations regarding the appropriate extent of prairie dog management, and these include but are not limited to: management costs to federal government, management costs to private and tribal landowners/managers, costs to maintain environmental values (land productivity, black-footed ferret recovery), and the ethical and humane treatment of animals. Short-term and long-term costs also have to be considered.

**COMMENT 114:** Some of the economic analysis information presented in the EIS is inappropriate, misleading and does not accurately reflect the significant economic impacts to ranches and local communities.

**RESPONSE:** A new economic analysis was completed between the DEIS and FEIS and is summarized in Section 3.10 of the FEIS. It includes some different economic analyses. However, this analysis also demonstrated that economic impacts to local communities from the possible reductions in permitted livestock grazing would be minor, but none-the-less, could be significant to individual ranches.

**COMMENT 115:** There should be a special fund for prairie dog control (management) and noxious weed control.

**RESPONSE:** The Forest Service has a specific fund for noxious weed control but does not have a similar fund specifically for management and control of prairie dogs or other wildlife to reduce damage.

**COMMENT 116:** Conservation practice (CP) funds should not be used to pay for prairie dog control (management).

**RESPONSE:** The Forest Service's Grazing Permit Administration Handbook (FSM 2209.13 – Chapter 20, Section 24.3) authorizes use of CP funds for practices needed to achieve desired resource conditions as described in land and resource management plans, project decisions, and rules of management. Nothing in the handbook precludes the use of CP funds for prairie dog management, including rodenticide applications or vegetation management fencing.

**COMMENT 117: The Forest Service is making no attempt to protect rangeland health.**

**RESPONSE:** We acknowledge in the FEIS that long-term prairie dog colonization and grazing by other herbivores can have significant effects on plant species composition, production and ground cover. The time it takes for perennial grassland vegetation to return following removal or reductions of prairie dogs and other herbivores probably varies based on a variety of factors such as precipitation, soil fertility, and concurrent livestock grazing practices.

**COMMENT 118: The EIS fails to address the effects of prairie dogs on the prairie ecosystem and its components, including vegetation, soils, water, air, and other wildlife. National grasslands should be managed to ensure the prairie ecosystem and aquatic habitats are protected.**

**RESPONSE:** Chapter 3 of the FEIS includes discussions on the ecological and environmental effects of implementing each of the alternatives. This includes resource effects on soil, water, air and wildlife.

**COMMENT 119: Prairie dogs can carry plague and other diseases that could affect people.**

**RESPONSE:** Prairie dogs can carry disease that may affect people, and public health and safety issues are addressed by each of the alternatives evaluated in the EIS.

**COMMENT 120: Prairie dogs on non federal lands can be controlled at any time. This makes the colonies on federal land even more important.**

**RESPONSE:** The Forest Service has not discounted the importance of maintaining prairie dogs on national grasslands.

**COMMENT 121: How frequent will prairie dog population reduction monitoring occur?**

**RESPONSE:** Some monitoring occurs annually, and it usually takes several years to inventory the status of all colonies on the national grasslands and forests in the project area.

**COMMENT 122: The Forest Service should disclose what the target population number is and how it was determined. How will the public be notified when the target population is met?**

**RESPONSE:** This proposed action addresses management of prairie dog colonies located in boundary management zones. Management of colonies located outside these zones in the interior of national grasslands and forests is not addressed, so it would be inappropriate and outside the scope of this proposed action to establish specific target acreage for prairie dog colonies at this time.

**COMMENT 123: Some of the prairie dog colony acreages in the EIS tables don't add up. Why?**

**RESPONSE:** Several people were confused about apparent discrepancies in the current (2004) colony acreages reported in Tables 1-1, 3-1 and 3-2. We apologize about the confusion, but in order to understand the acreages reported in the tables, it is necessary to review and understand the footnotes to each table. This will reduce some of the confusion. The other factor adding to the confusion is the fact that Tables 1-1 and 3-1 report current (2004) on-the-ground colony acreages, while Table 3-2 includes active colony acreages (rodenticide unlikely) after applying the rodenticide criteria prescribed under each alternative.

**COMMENT 124:** How was the 2012 prairie dog colony acreages predicted? Do those predictions take into account the effects of prairie dog shooting?

**RESPONSE:** This is described in Section 3.1 of the EIS.

**COMMENT 125:** The current acres under each alternative aren't the same. Why?

**RESPONSE:** The current acres (rodenticide unlikely) column in Table 3-2 includes the current colony acreages that would not be subject to rodenticide application. Since the rodenticide criteria vary by alternative, the reported current colony acreages that would not be subject to rodenticide applications also vary.

**COMMENT 126:** Anecdotal evidence suggests that much of the recent colony expansion was accomplished by prairie dogs scattering out (reduced density) in search of food, rather than an actual increase in prairie dog numbers. Adopting draconian measures primarily in response to the effects of drought, rather than changes in prairie dog or ferret management, is excessive. This needs to be clarified to avoid misleading the public and to help them more accurately evaluate the alternatives.

**RESPONSE:** As suggested in the comment, there is no empirical data to support these claims. Even if the recent increase in colony acreage during the drought was not the result of an actual increase in prairie dog populations, it is highly likely that the prairie dog densities in both the old and new colony areas will increase rapidly in the future when drought conditions end and forage levels recover. Thus, a prairie dog population increase will likely and eventually result from the expanded colony acreage.

**COMMENT 127:** None of the alternatives address research to systematically assess the effectiveness of the management tools to resolve conflicts. Alternative 3 is referred to as an adaptive management approach, but there is no indication that information will be systematically collected, analyzed, and applied.

**RESPONSE:** Research is suggested in the Record of Decision for this proposed action, however, decisions to conduct research commonly lie with other entities both within and outside the Forest Service.

**COMMENT 128:** Alternative 2 would amend the LRMP by deleting the objective and guidelines prescribing establishment of a new prairie dog colony complex on the Oglala National Grassland and the northeast portion of the Fort Pierre National Grassland. There is no scientific evidence presented to support this change in direction. This is



**also outside the context of boundary management to reduce encroachment and therefore, is outside the scope of this EIS and decision.**

**RESPONSE:** Boundary management as described under Alternative 2 essentially extirpates prairie dogs from the two national grasslands, assuming all colonies within the boundary management zones are eventually treated with rodenticide. For this reason, the management objectives specified in the LRMP for black-tailed prairie dogs as a management indicator species (MIS) cannot be met, and therefore, the species is dropped as a MIS for the two national grasslands under Alternative 2 only.

**COMMENT 129: Definitions should be provided for “prairie dog colony” and “prairie dog colony boundary”.**

**RESPONSE:** A definition of a prairie dog colony has been added to the glossary. It includes a description of how the boundary of a colony is determined or mapped.

**COMMENT 130: Conservation measure 3 on page 20 of the DEIS indicates that prairie dog management will be revisited if the predicted 2012 colony acreage is exceeded in the future. If the predicted acreage is exceeded, and there is no adverse impact on the resources, why "revisit" prairie dog management?**

**RESPONSE:** Re-visiting prairie dog management does not mean that changes in management direction would automatically occur. If there are no measurable impacts to adjoining landowners, there would be no need to change direction.

**COMMENT 131: The proposal to remove 5,130 acres of land from the Conata Basin ferret reintroduction habitat area and to weaken certain enforceable standards to unenforceable guidelines goes beyond boundary management. If these non-boundary issues can be added to the scope of the DEIS, then so can other prairie dog management issues. How is the proposal to reallocate the 5,130 acres consistent with the purpose and need stated in the EIS?**

**RESPONSE:** Actually, it doesn't go beyond boundary management. As described in Sections 2.2.2 and 2.2.3 for Alternatives 2 and 3, respectively, there are additional restrictions (minimum habitat thresholds) on rodenticide use in designated black-footed ferret habitat. By removing this area from the designated ferret habitat, the additional restrictions would no longer apply to this area.

**COMMENT 132: Please provide a map that shows all management area prescriptions.**

**RESPONSE:** (See response to Comment 10)

**COMMENT 133: Full implementation of the current LRMP, including livestock grazing management and land consolidation, will be more effective than Alternatives 2 and 3 in reducing prairie dog encroachment.**

**RESPONSE:** Alternatives 2 and 3 also incorporate the same level of grazing management coordination and land consolidation as the LRMP. Increased rodenticide use is also a component of both alternatives, and therefore, both of these alternatives are more effective

than the current LRMP in reducing encroachment because they address both short (rodenticide use) and long-term (non-lethal) effectiveness.

**COMMENT 134: There should be a contingency plan in place should the selected alternative prove to be ineffective.**

**RESPONSE:** A contingency plan has been added to Section 2.2.5 (item 4) in the EIS.

**COMMENT 135: The Forest Service was directed but failed to coordinate with county governments and local landowners.**

**RESPONSE:** We coordinated with most county commissions and with many local landowners as documented below:

All of the affected county commissions were contacted directly, with the exception of Lyman County, South Dakota.

On January 20, 2005, the Ranger Mike McNeill addressed the annual meeting of the Indian Grazing Association with specific reference to prairie dog management.

On January 18, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Cottonwood Grazing Association, with specific reference to prairie dog management.

On January 18, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Sugarloaf Grazing Association, with specific reference to prairie dog management.

On January 15, 2005, Forest Supervisor Don Bright addressed the annual meeting of the Pioneer Grazing Association with specific reference to prairie dog management.

On October 12, 2004, Ranger Tony DeToy addressed the annual meeting of the Central South Dakota Grazing Association, with specific reference to prairie dog management.

On October 27, 2004, Ranger Bill Perry addressed the annual meeting of the Eastern Pennington Grazing Association, with specific reference to prairie dog management.

On October 20, 2004, Biologist Doug Sargent addressed the annual meeting of the White River Grazing Association, with specific reference to prairie dog management.

A general comment solicitation was also conducted. A thirty day comment period was provided after the Notice of Intent (NOI) to prepare a DEIS. The NOI was published in the Federal Register on November 1, 2004. Local landowners that responded to the NOI included: Pioneer Grazing Association, Cottonwood Grazing Association, Sugar Loaf Grazing Association, White River Grazing Association, Robert Jordan, Martha Raben, Jake and Vickie Wassaburger, and Bernard Huber.

County commissions that responded to the NOI were Fall River County in South Dakota and Dawes County in Nebraska.

The DEIS was filed with the U.S. Environmental Protection Agency on February 22, 2005, and a Notice of Availability that the DEIS was available for review and comment was

published on March 4, 2005. The comment period on the Draft EIS closed on April 18<sup>th</sup>, 2005. Local landowners that responded to the DEIS were:

Pioneer Grazing Association, Cottonwood Grazing Association, Sugar Loaf Grazing Association, White River Grazing Association, Lyle Hald, Leonard Forbs, Emiel Raben, Ray Semroska, Eldon Wohlers, and Leonard Wood.

County commissions that responded to the DEIS were: Butte, Corsen, Custer, Fall River Jackson, Meade, and Pennington in South Dakota and Dawes and Sioux in Nebraska.

The States of South Dakota and Nebraska recently completed public involvement programs addressing prairie dog conservation and management across each state. Comments from both efforts have been analyzed and documented. Also, Fall River County adopted the Fall River County Prairie Dog Conservation Act for National Grasslands. This act was reviewed before completion of the FEIS.

In conclusion, county governments and local landowners were given opportunities to provide input and did participate.

**COMMENT 136: The cumulative effects section in the EIS is completely inadequate and fails to describe the cumulative impacts to prairie dogs, ferrets, associated wildlife, and the environment. It also fails to evaluate cumulative impacts from the individual alternatives. However, it does provide enough information to strongly challenge the management actions proposed under Alternatives 2 and 3.**

**RESPONSE:** We disagree and believe the information is adequate. In addition to the cumulative effects disclosed in Section 3.14 of the EIS, additional cumulative effects are presented for each alternative in Appendix E of the DEIS and FEIS.

**COMMENT 137: The EIS should discuss the proposed Nebraska prairie dog legislation (LB 673).**

**RESPONSE:** This bill did not pass, and it is not discussed in the EIS.

**COMMENT 138: The term “associated units” needs to be defined.**

**RESPONSE:** This has been done in Section 1.1 of the EIS.

**COMMENT 139: The Forest Service should coordinate its prairie dog and black-footed ferret management programs with the Badlands National Park. For example, the park could provide sites for research on non-lethal prairie dog management tools.**

**RESPONSE:** We do coordinate with the Badlands National Park, and we agree that the Park provides some excellent research opportunities.

**COMMENT 140: A map should be included that shows adjoining landowners with federal grazing permits versus those without federal permits.**

**RESPONSE:** We do not see the relevance of this information to the decision at hand.

**COMMENT 141: We were unable to access Appendix E and therefore, were not able to get all the information we wanted.**



**RESPONSE:** Version 6.0 of Adobe Reader was needed to access the documents. Adobe Reader is available for a free download. We are sorry for the inconvenience.

**COMMENT 142:** Some of the effects analyses sections in the EIS do not distinguish between the alternatives. Why?

**RESPONSE:** When there were no effects identified under any of the alternatives, there was no reason to distinguish between alternatives.

**COMMENT 143:** Changes in plant nutrient content as a result of prairie dog reduction or removal need to be considered, especially in areas lacking other herbivores.

**RESPONSE:** This is discussed in Section 3.6.2 of the EIS.

**COMMENT 144:** More information is needed in the EIS on the protocols and costs (Appendix D) for inventory and monitoring of black-tailed prairie dogs and black-footed ferrets.

**RESPONSE:** We believe adequate information on the costs for inventory and monitoring is provided in Appendix D. Regarding protocols, prairie dog colonies are periodically mapped using GPS and the outer perimeter of each colony using the outermost burrow openings and, in some cases, vegetation clip lines to delineate the outer perimeter of each colony. Habitat capacity for black-footed ferrets uses a process where prairie dog populations are estimated using data on colony acreages and burrow opening densities. Population estimates of black-footed ferrets are based on intensive searches and marking individual ferrets over the entire reintroduction area.

**OUT OF SCOPE (NO RESPONSE PROVIDED)**

**COMMENT:** Agricultural and residential expansion along national grassland boundaries should be restricted to reduce potential conflicts involving prairie dogs.

**COMMENT:** Livestock should not be allowed to graze public lands.

**COMMENT:** The Forest Service should extend its NEPA analysis to the South Dakota prairie dog management plan.

**COMMENT:** One alternative should involve the Forest Service managing prairie dogs on the adjoining lands where colony encroachment from national grasslands has occurred.

**COMMENT:** The number of adjoining landowners that receive public land grazing subsidies should be disclosed.

**COMMENT:** All federal grants to the South Dakota Departments of Agriculture and Game, Fish and Parks for animal damage control should be disclosed.

**COMMENT:** This proposed action is unacceptable if it results in a loss of motorized access to the national grasslands.

**COMMENT:** Restore bison on the national grasslands.

**COMMENT:** The EIS should disclose the costs associated with breeding and reintroducing black-footed ferrets.

**COMMENT:** This proposal rejects several requirements from the Multi-state Prairie Dog Conservation Plan.

**COMMENT:** This proposal should include management of interior colonies.

**COMMENT:** This proposal will produce more unwanted cattle.

**COMMENT:** The taxpayers should not be subsidizing livestock grazers.

**COMMENT:** We object to the prairie dog poisoning last year. It was a violation of the LRMP.

**COMMENT:** Prairie dog shooting is another way we can introduce youth to outdoor recreation.

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**Appendix E - Biological Assessment and Evaluation**

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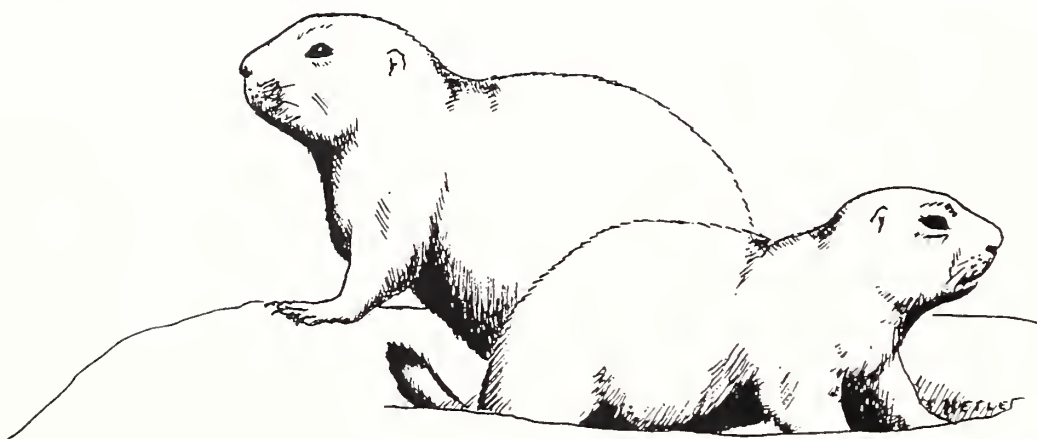
**Appendix G - Glossary**

**Appendix H - Consistency Check with the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan**

**Appendix I - Consistency Check with the LRMP**

**Appendix J - LRMP Amendment Factors of Significance and Non-Significance**

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# APPENDIX A

## MAPS

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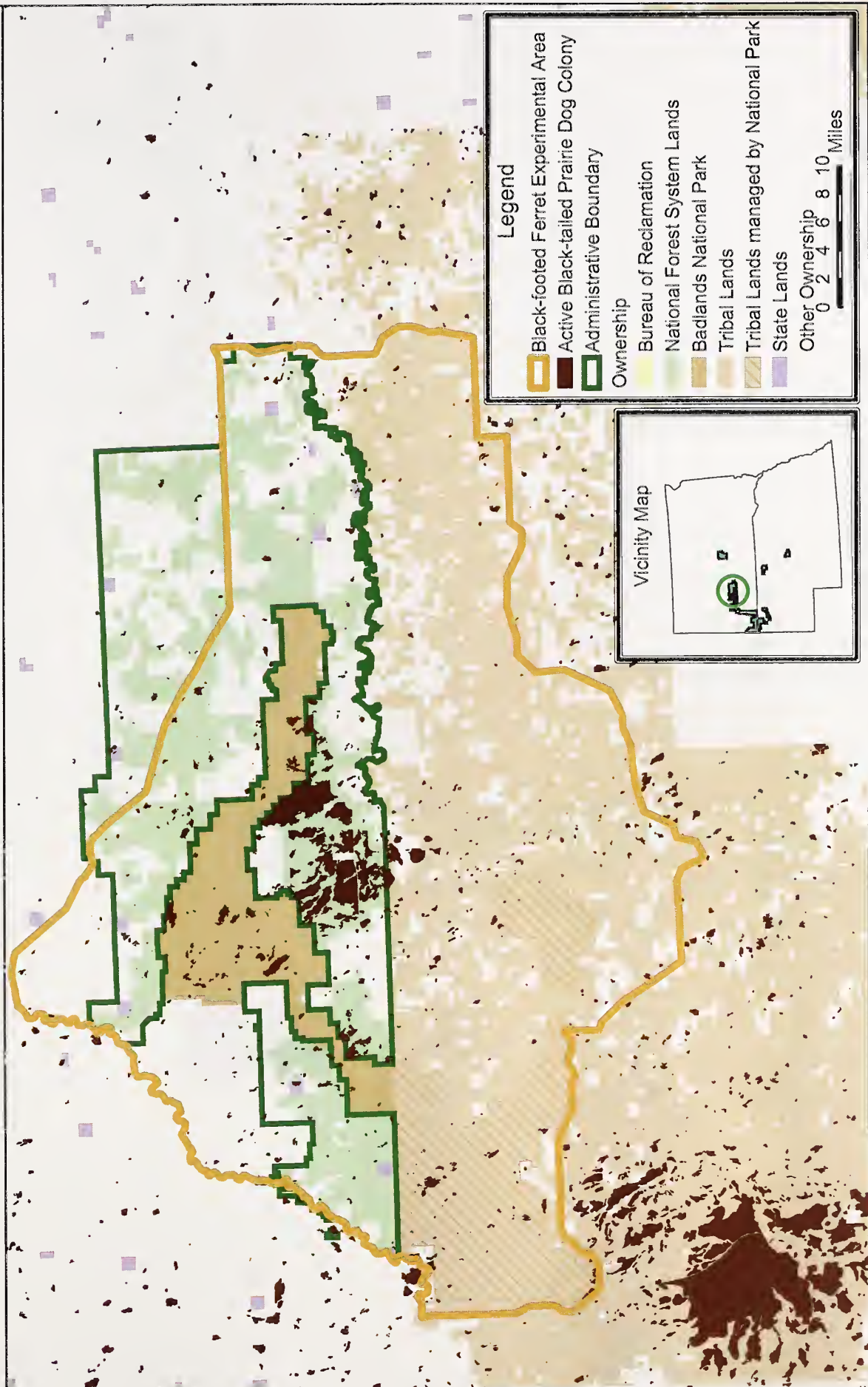
# APPENDIX A

## TABLE

The following table shows the results of the analysis of variance for the different groups of subjects. The first column shows the group, the second column shows the mean score, the third column shows the standard deviation, and the fourth column shows the F-value. The F-value is a measure of the significance of the difference between the groups. A value of 1.00 indicates that the difference is not significant, while a value of 0.05 indicates that the difference is significant at the 5% level.



# Experimental Population Area for Black-footed Ferrets Conata Basin/Badlands, South Dakota





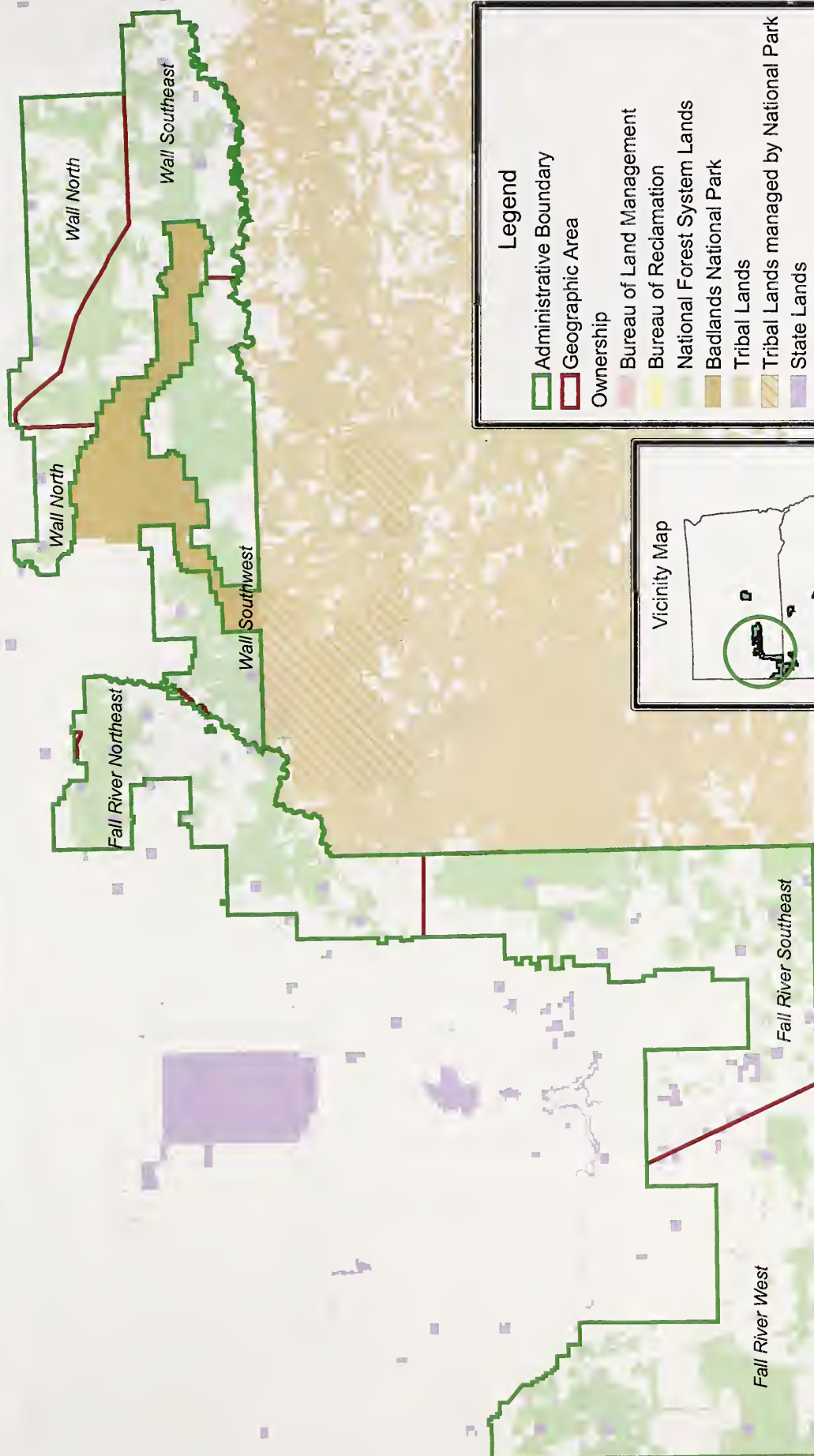


Exhibition of the Black-looked Female





# Geographic Areas on the Buffalo Gap National Grassland



## Legend

- Administrative Boundary
- Geographic Area
- Ownership
- Bureau of Land Management
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# 2004 Active Black-tailed Prairie Dog Colonies West Half Buffalo Gap National Grassland

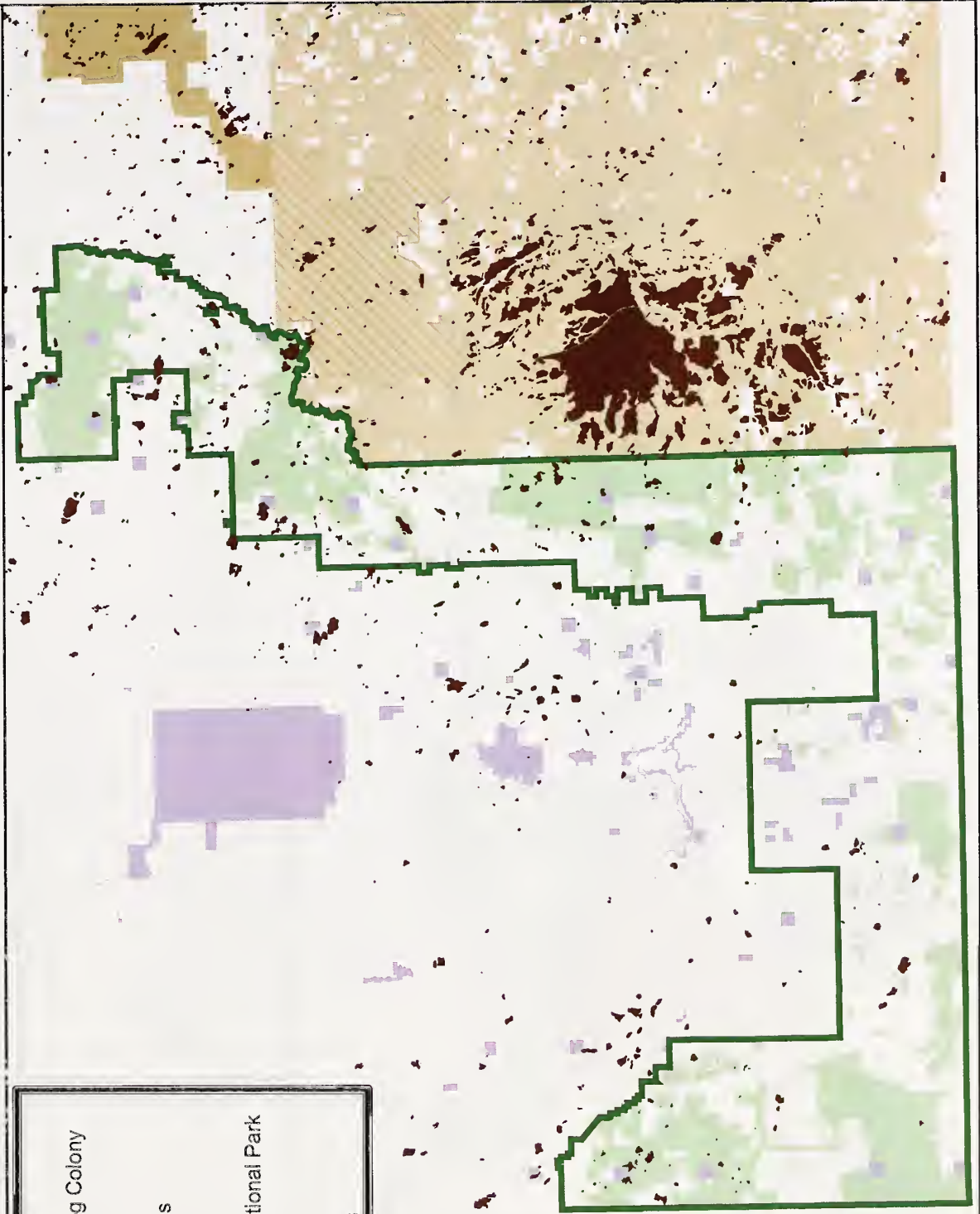


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Ownership
  - National Forest System Lands
  - Badlands National Park
  - Tribal Lands
  - Tribal Lands managed by National Park
  - State Lands
  - Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map



1875

THE UNIVERSITY OF CHICAGO  
LIBRARY

1875



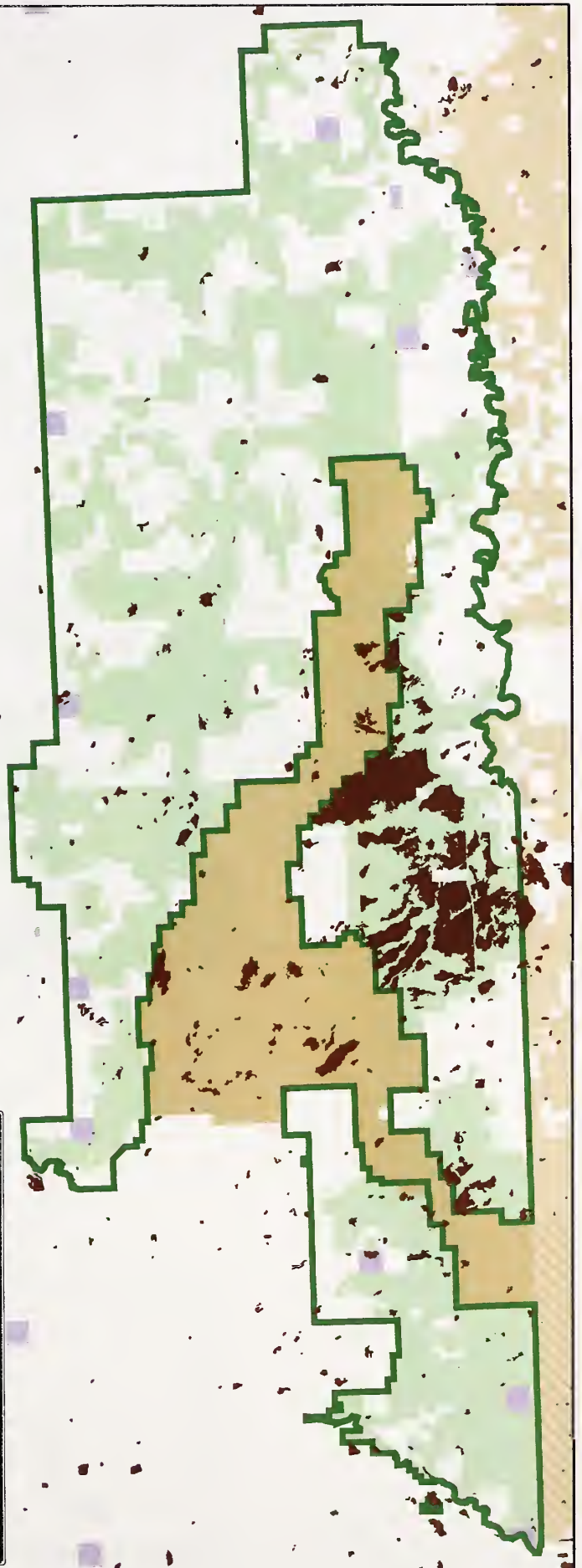
# 2004 Active Black-tailed Prairie Dog Colonies East Half Buffalo Gap National Grassland



## Legend

- Active Black-tailed Prairie Dog Colony
  - Administrative Boundary
  - Ownership
  - Bureau of Reclamation
  - National Forest System Lands
  - Badlands National Park
  - Tribal Lands
  - Tribal Lands managed by National Park
  - State Lands
  - Other Ownership
- 0 2 4 6 8 10 Miles

## Vicinity Map









# 2004 Active Black-tailed Prairie Dog Colonies Fort Pierre National Grassland



## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map

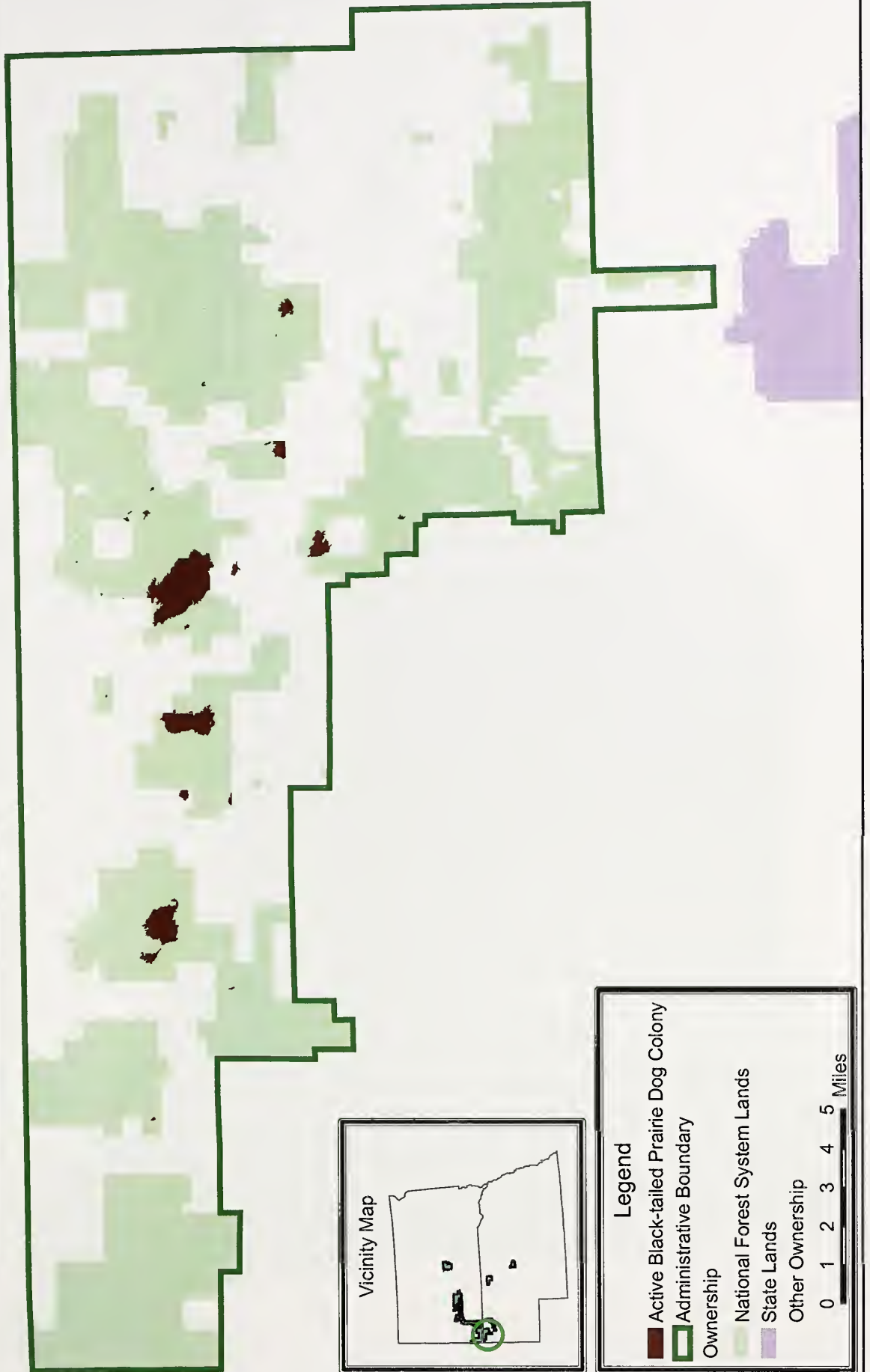








# 2004 Active Black-tailed Prairie Dog Colonies Oglala National Grassland



Vicinity Map

## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles





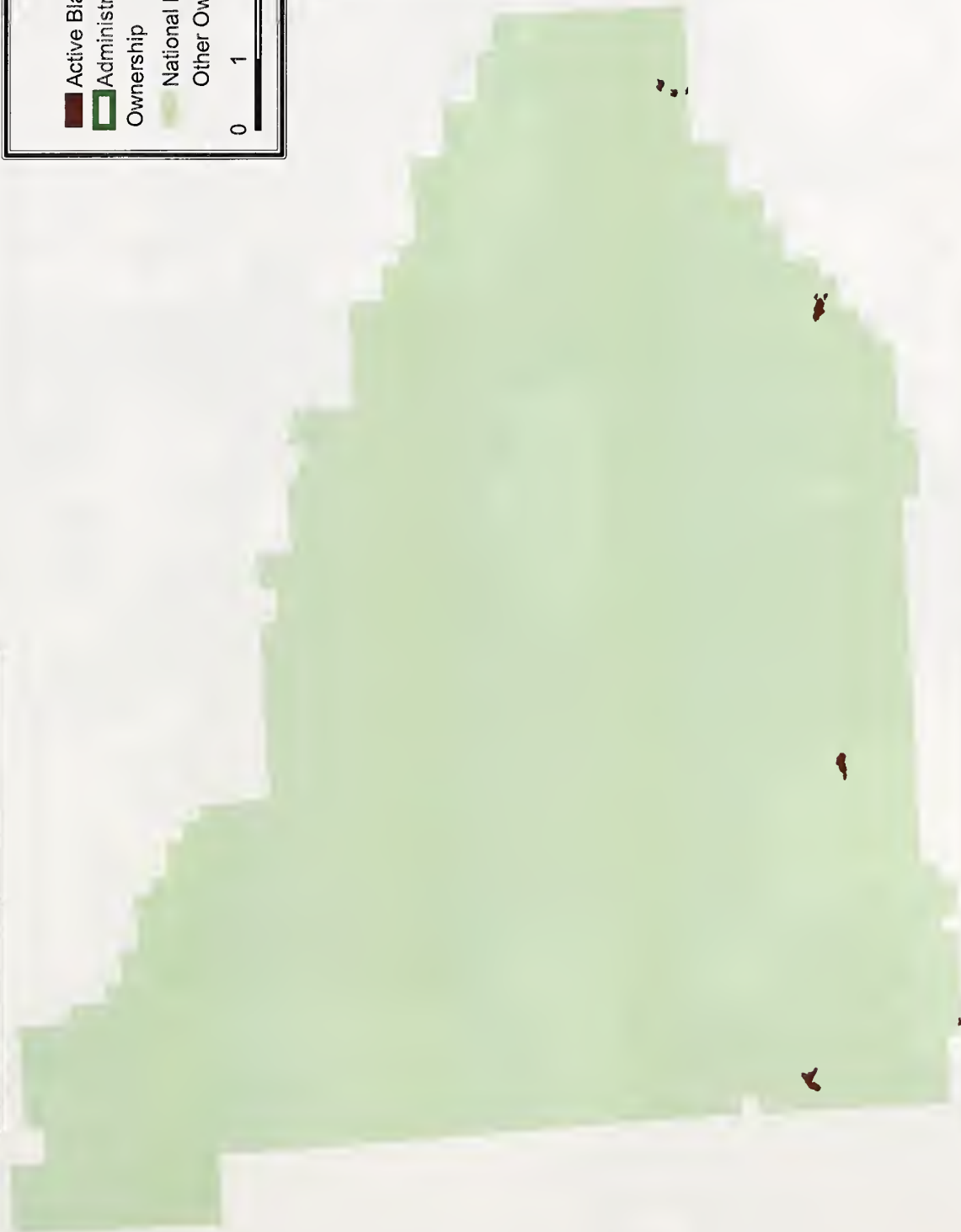
# 2004 Active Black-tailed Prairie Dog Colonies Bessey Ranger District



- Legend**
- Active Black-tailed Prairie Dog Colony
  - Administrative Boundary
  - National Forest System Lands
  - Other Ownership



Vicinity Map







General Manager, Dulles

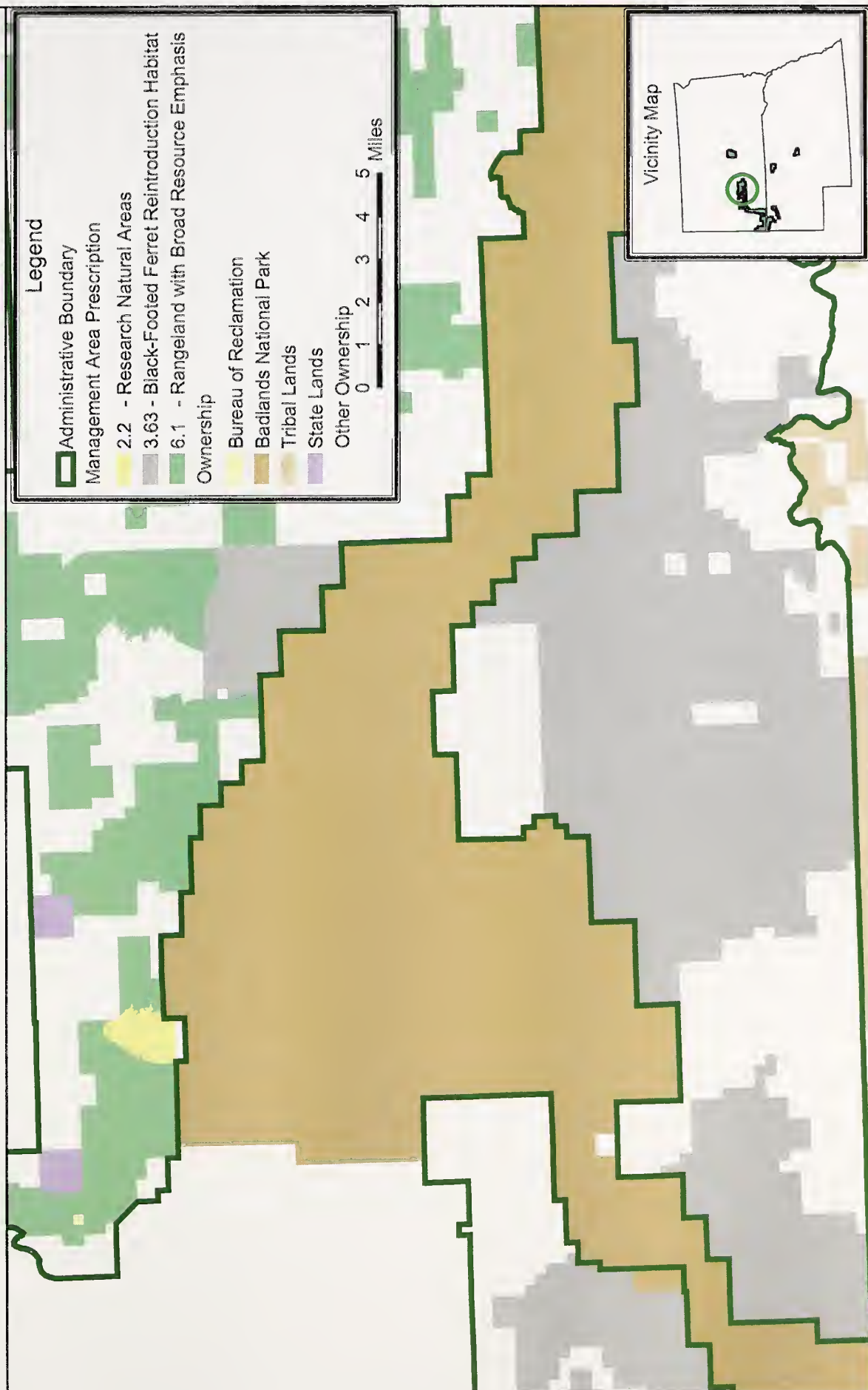
John Young Enterprises, Dulles, Virginia



Name	
Address	
City	
State	
Zip	
Phone	
Fax	
E-mail	
Comments	



# Existing Management Area Prescriptions within the Conata Basin Buffalo Gap National Grassland

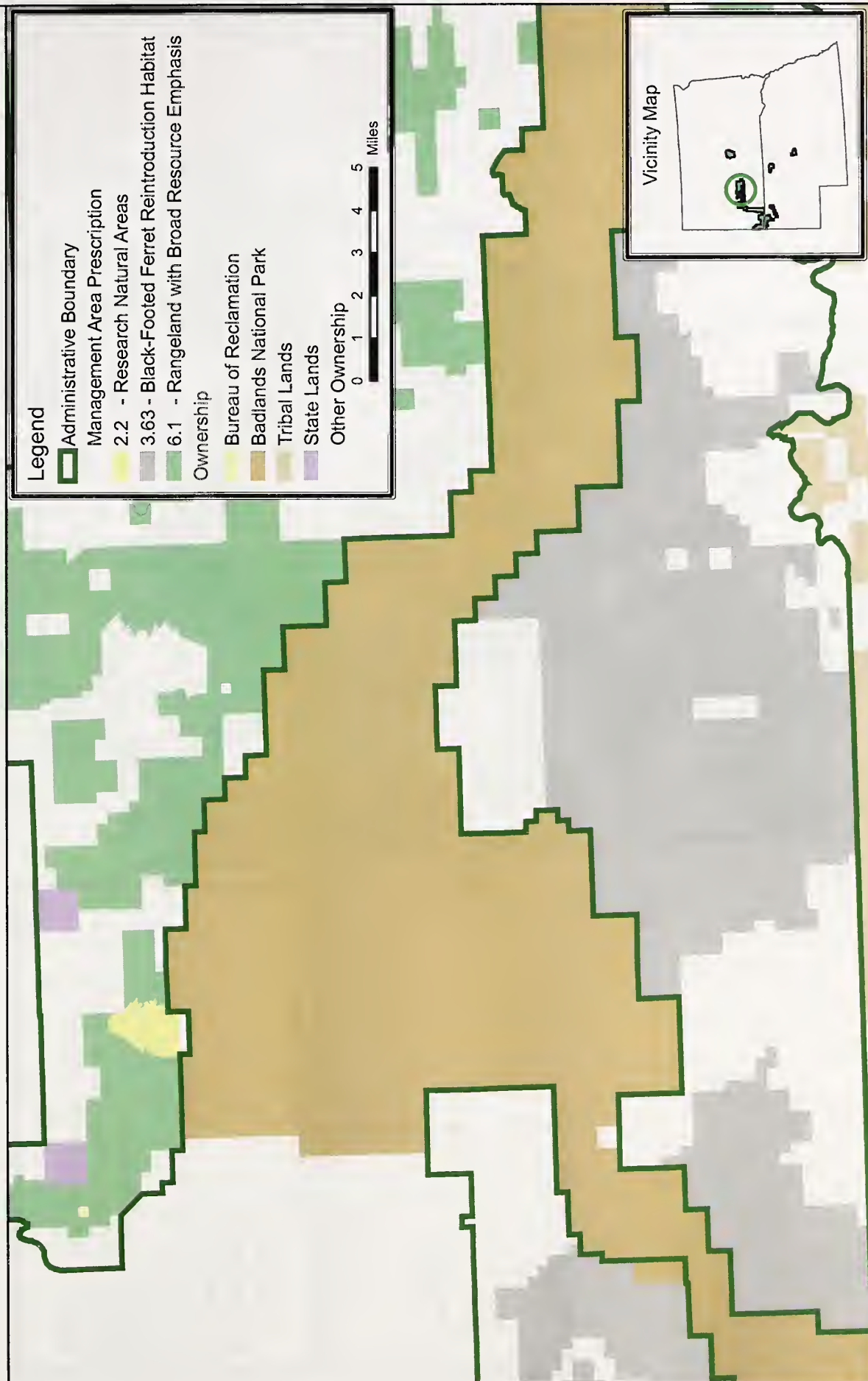




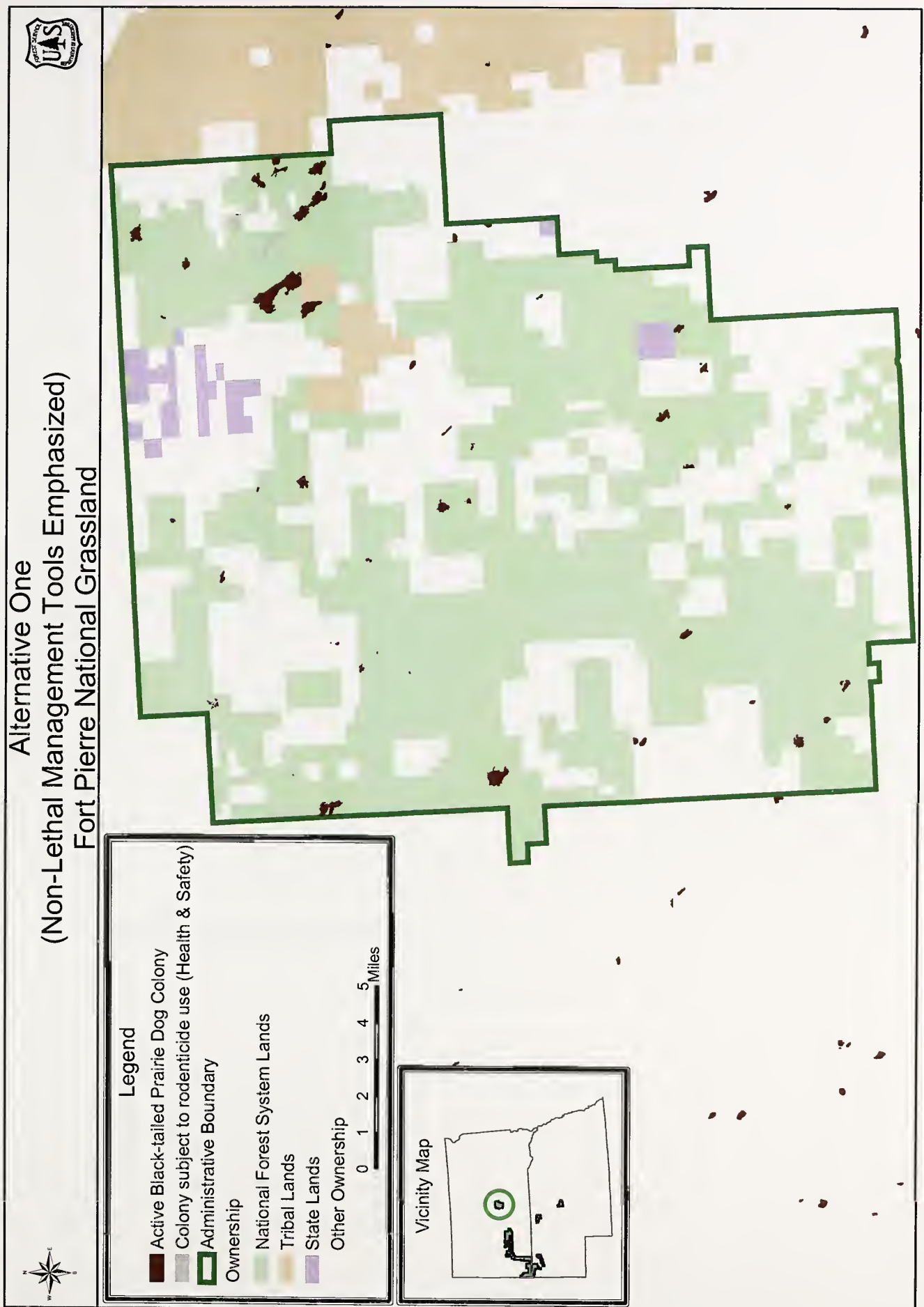




# Proposed Change to Management Area Prescriptions within the Conata Basin Buffalo Gap National Grassland













Alternative Two  
(One Mile Boundary Management Zone)  
Fort Pierre National Grassland

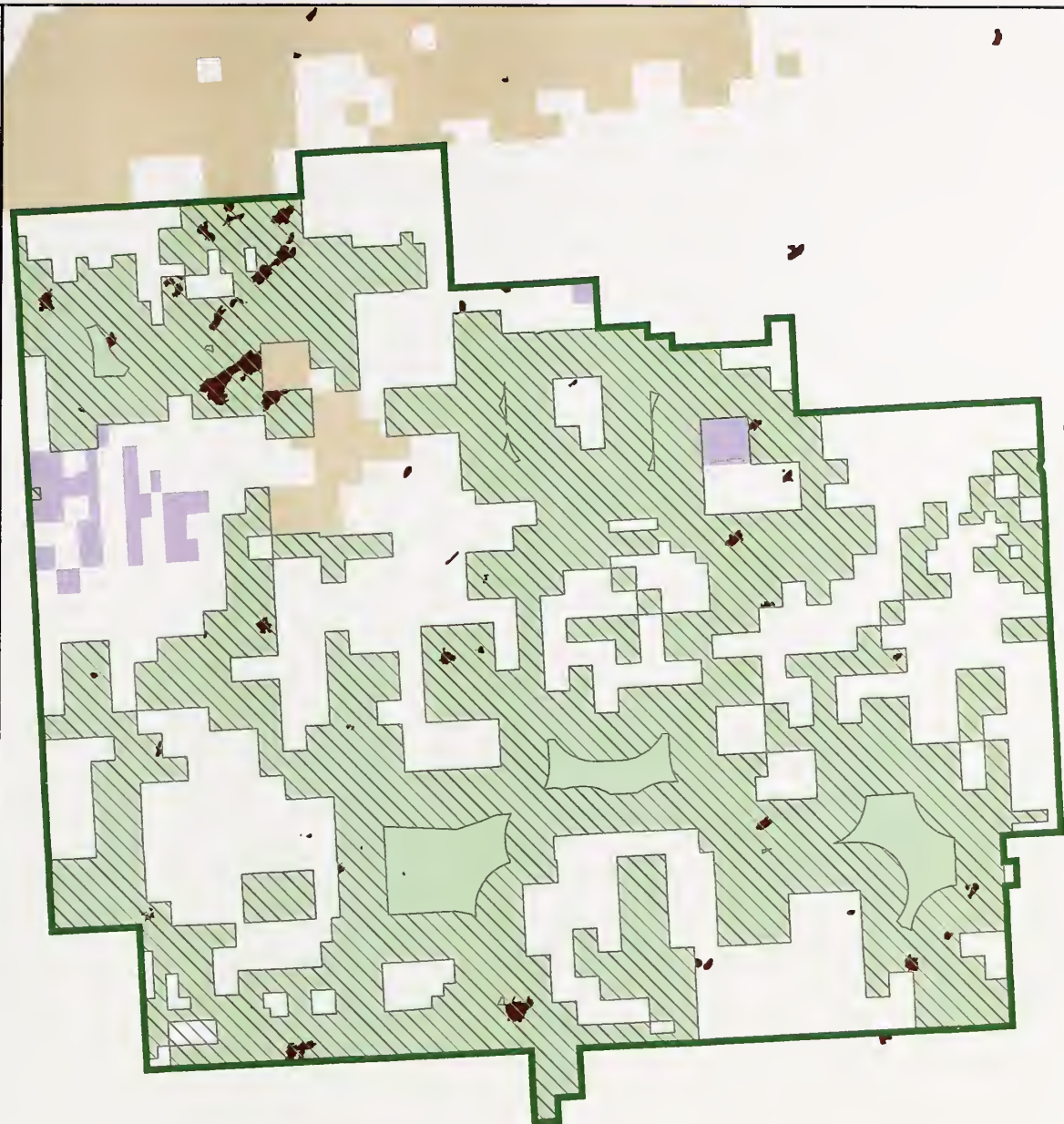


Legend

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

Vicinity Map









Alternative Three  
(Quarter-Mile Boundary Management Zone)  
Fort Pierre National Grassland

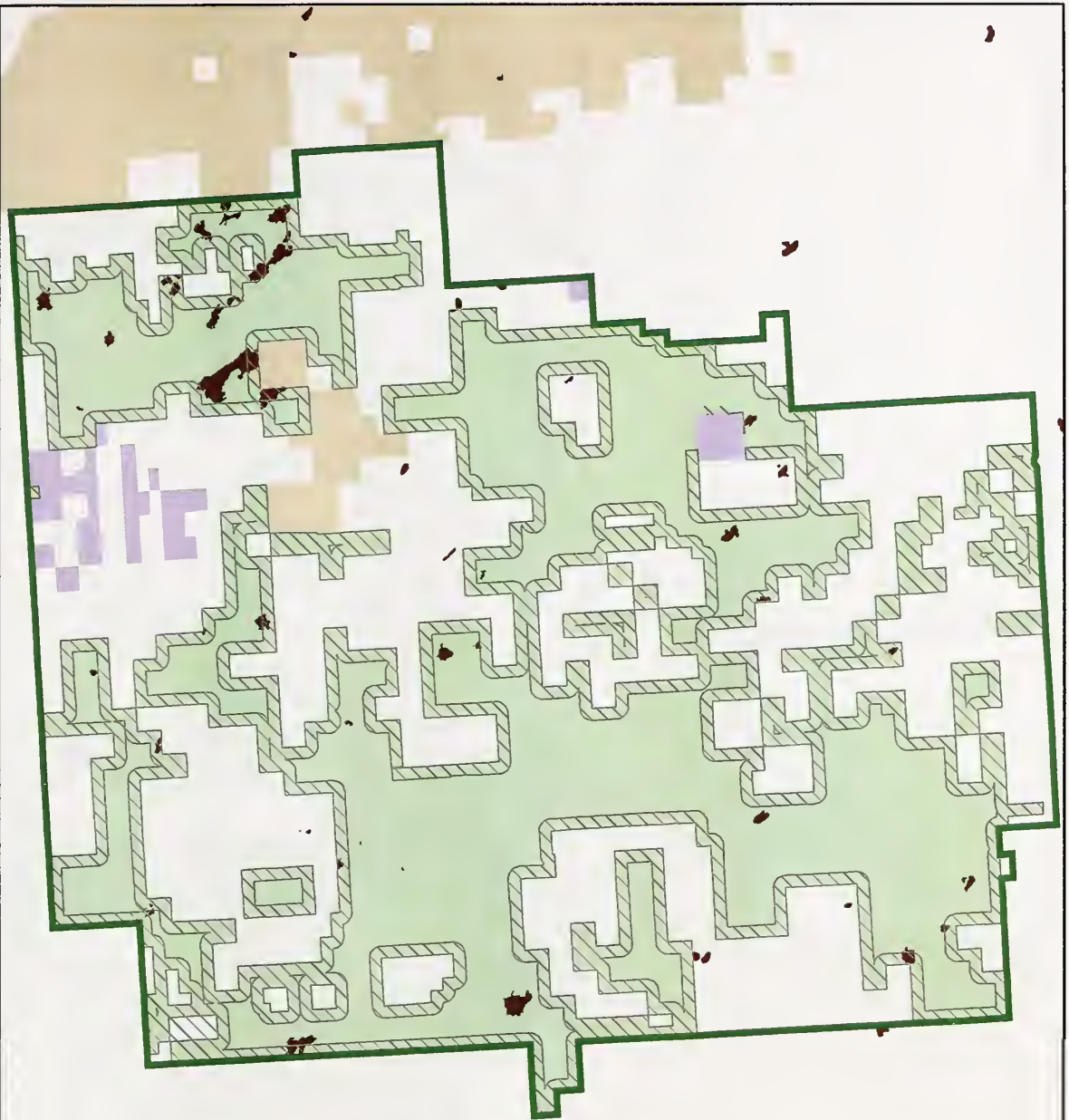


Legend

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

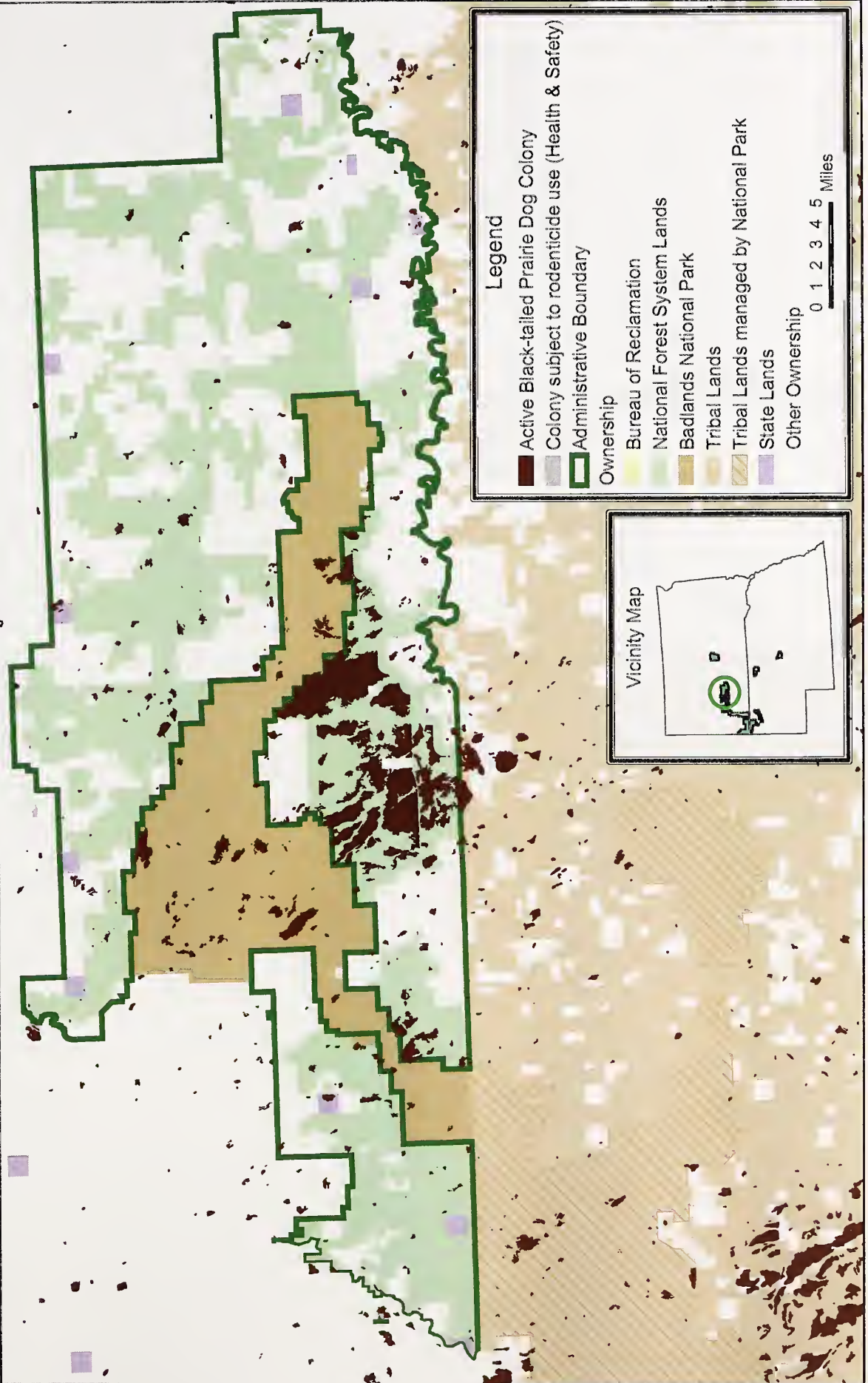
Vicinity Map







Alternative One  
(Non-Lethal Management Tools Emphasized)  
East Half Buffalo Gap National Grassland

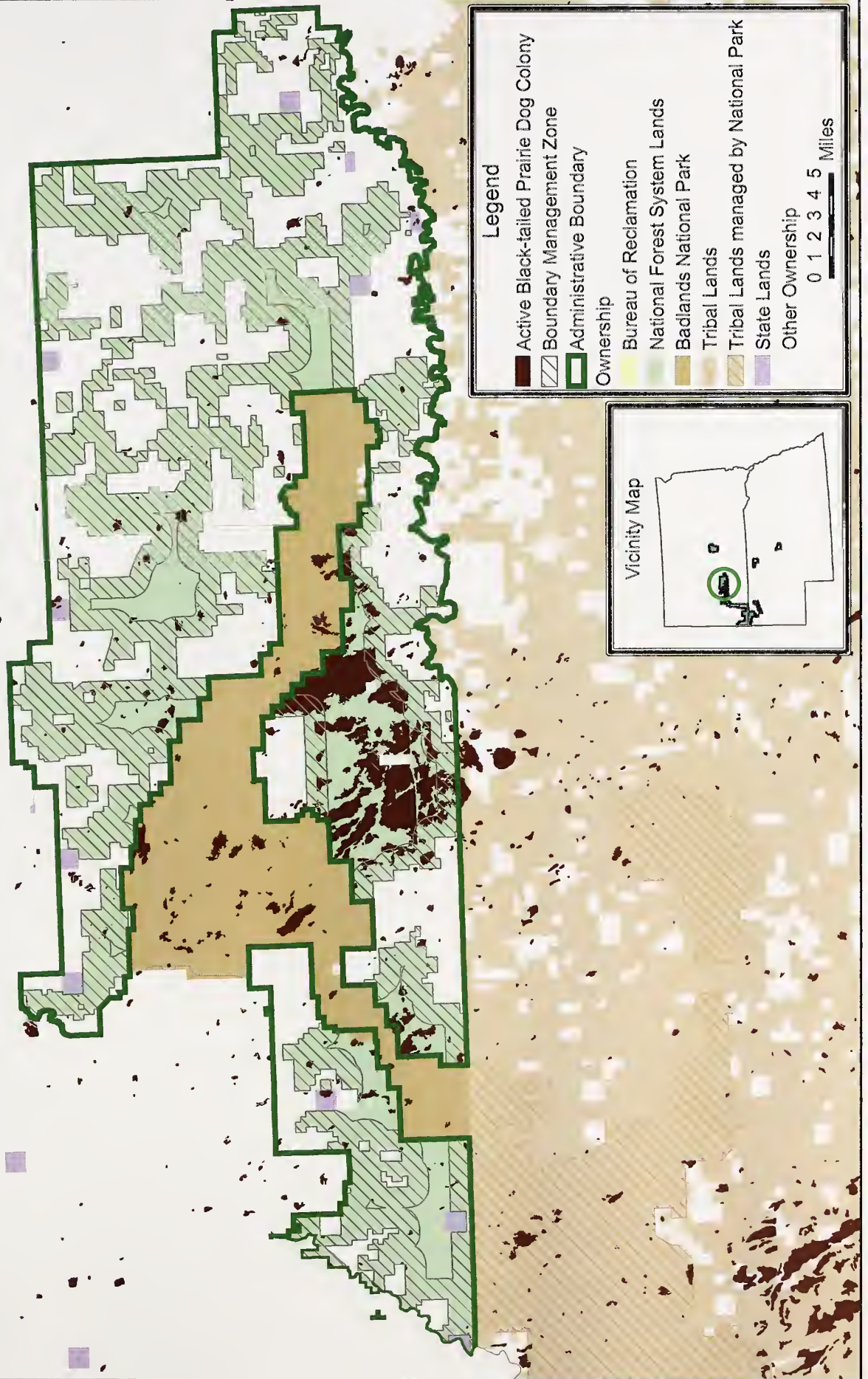








Alternative Two  
(One Mile Boundary Management Zone)  
East Half Buffalo Gap National Grassland

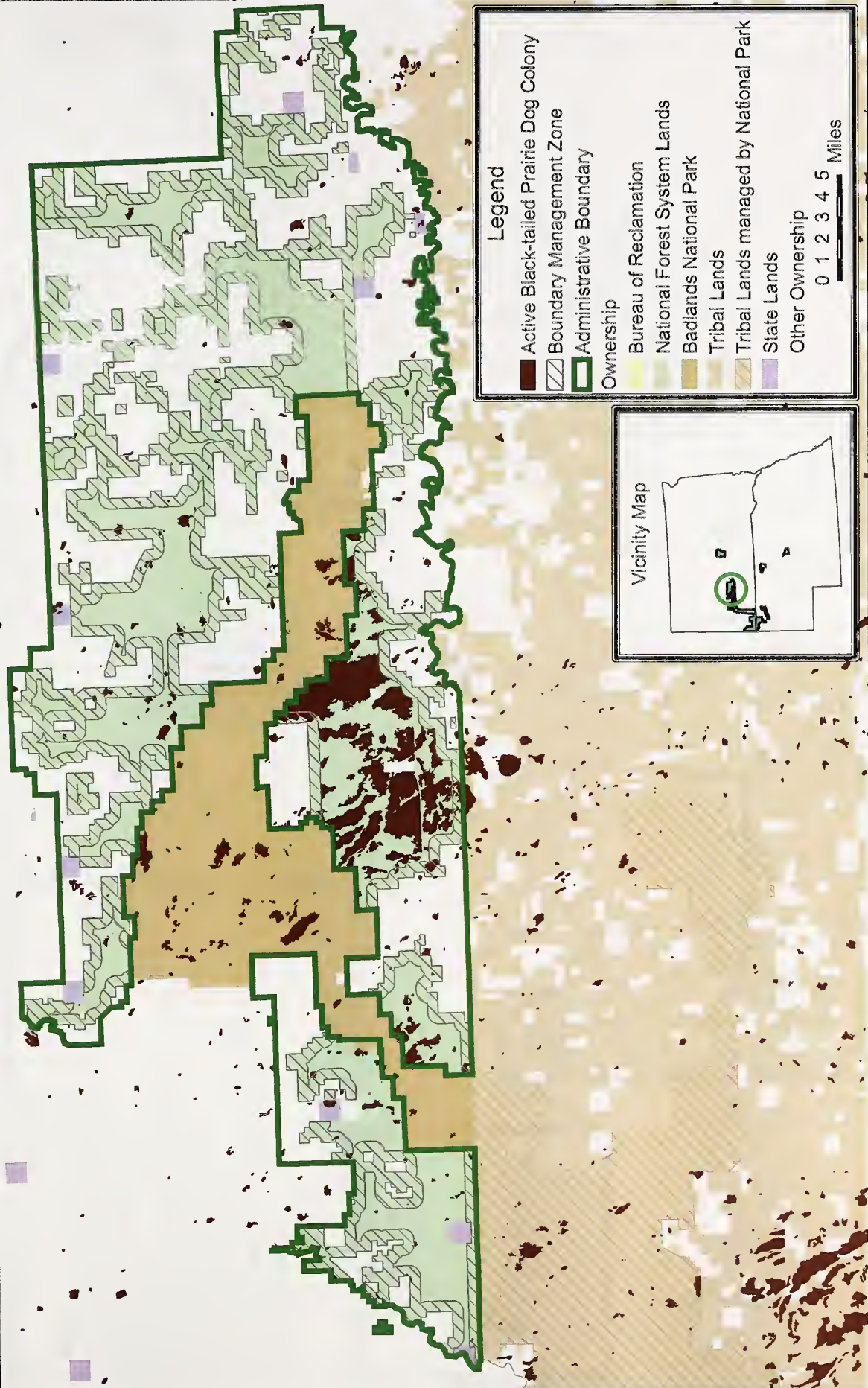








Alternative Three  
(Half-Mile Boundary Management Zone)  
East Half Buffalo Gap National Grassland









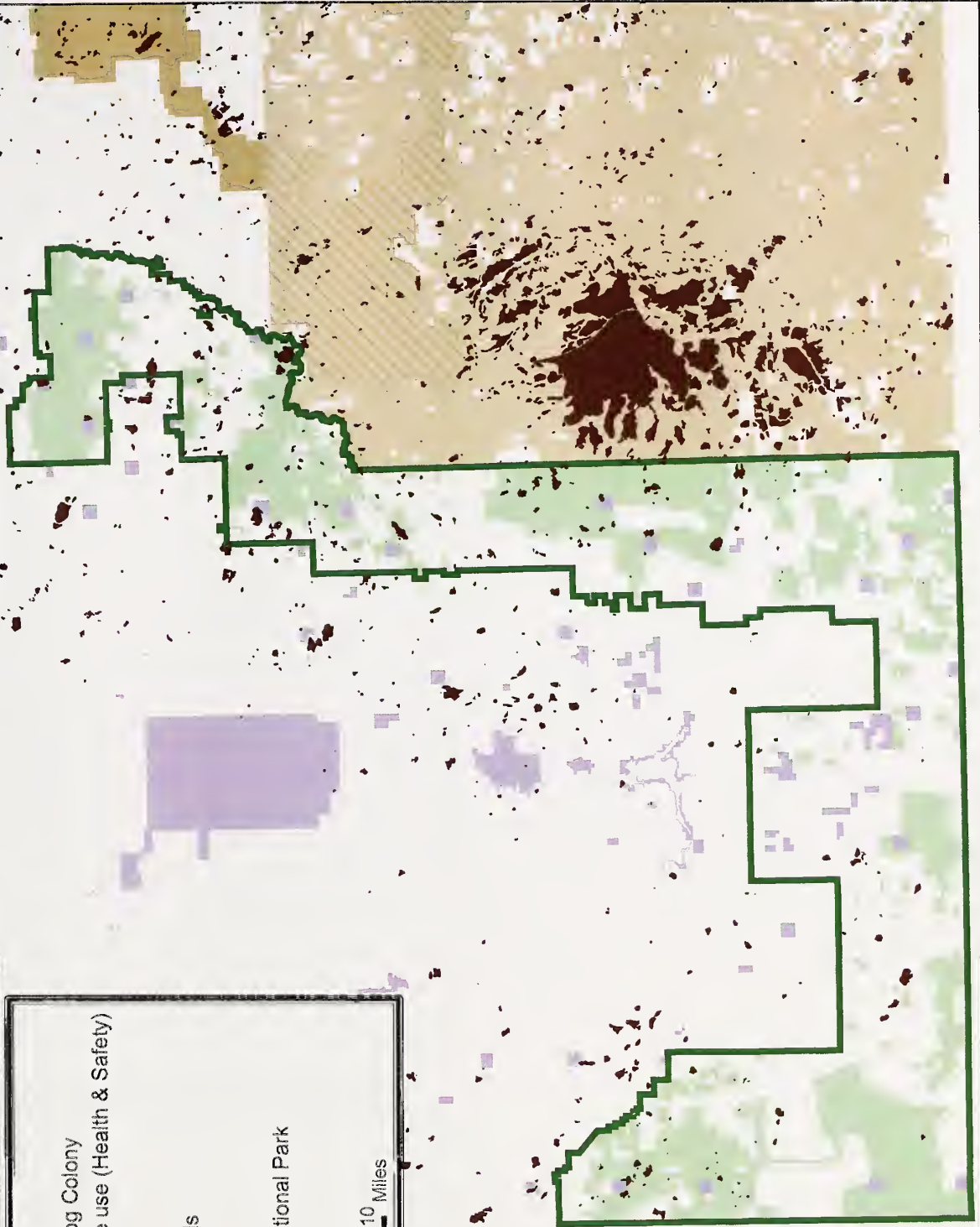
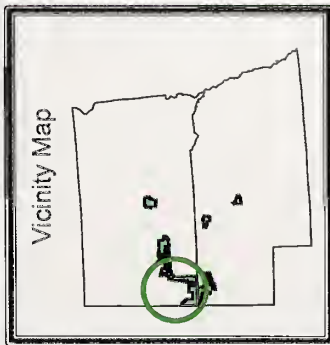
Alternative One  
(Non-Lethal Management Tools Emphasized)  
West Half Buffalo Gap National Grassland



**Legend**

	Active Black-tailed Prairie Dog Colony
	Colony subject to rodenticide use (Health & Safety)
	Administrative Boundary
<b>Ownership</b>	
	National Forest System Lands
	Badlands National Park
	Tribal Lands
	Tribal Lands managed by National Park
	State Lands
	Other Ownership

0 2 4 6 8 10 Miles







THE NATIONAL ARCHIVES  
COLLECTIONS DEVELOPMENT  
DIVISION





# Alternative Two (One Mile Boundary Management Zone) West Half Buffalo Gap National Grassland

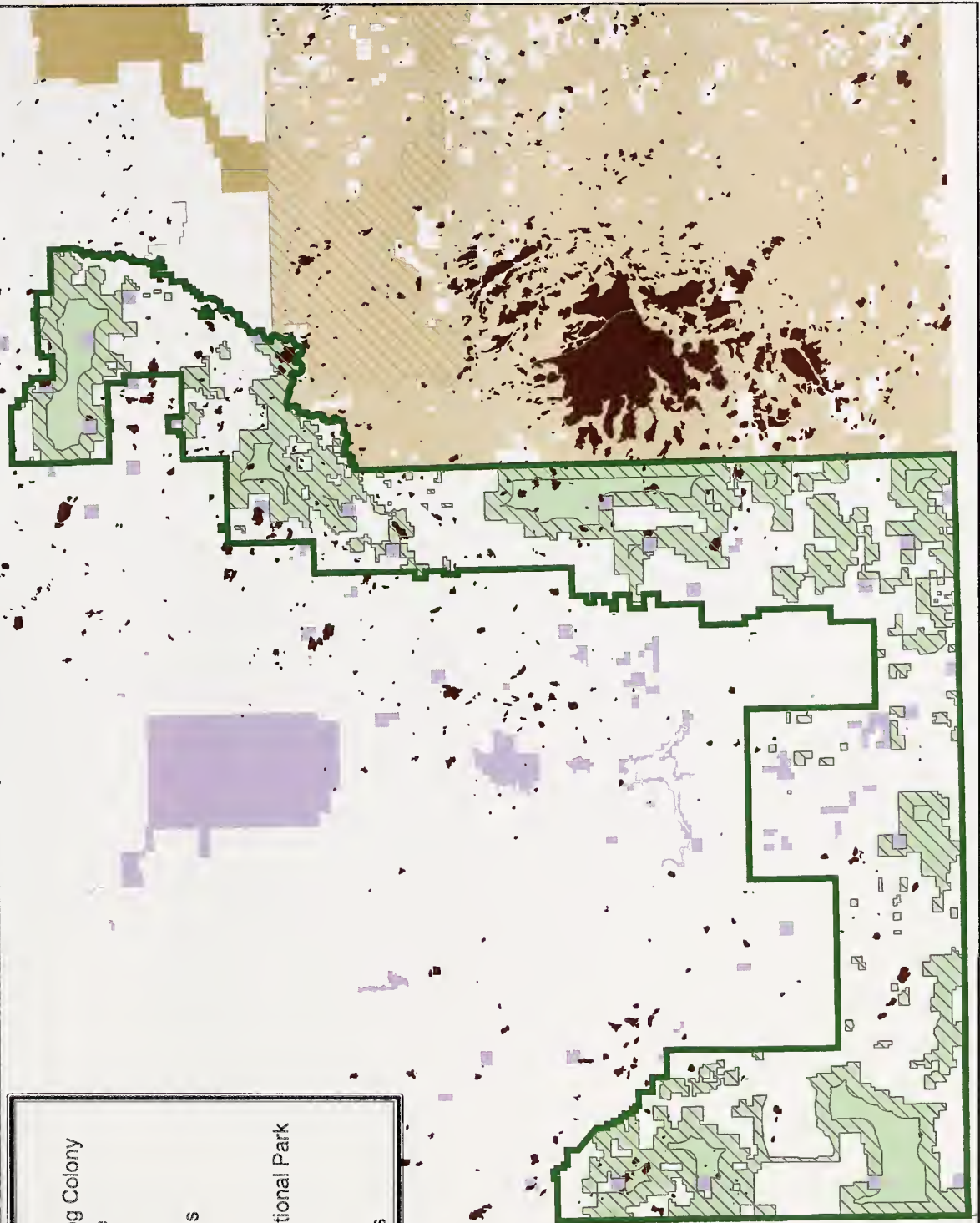
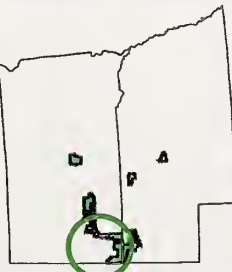


## Legend

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- Ownership**
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









Alternative Three  
(Half-Mile Boundary Management Zone)  
West Half Buffalo Gap National Grassland

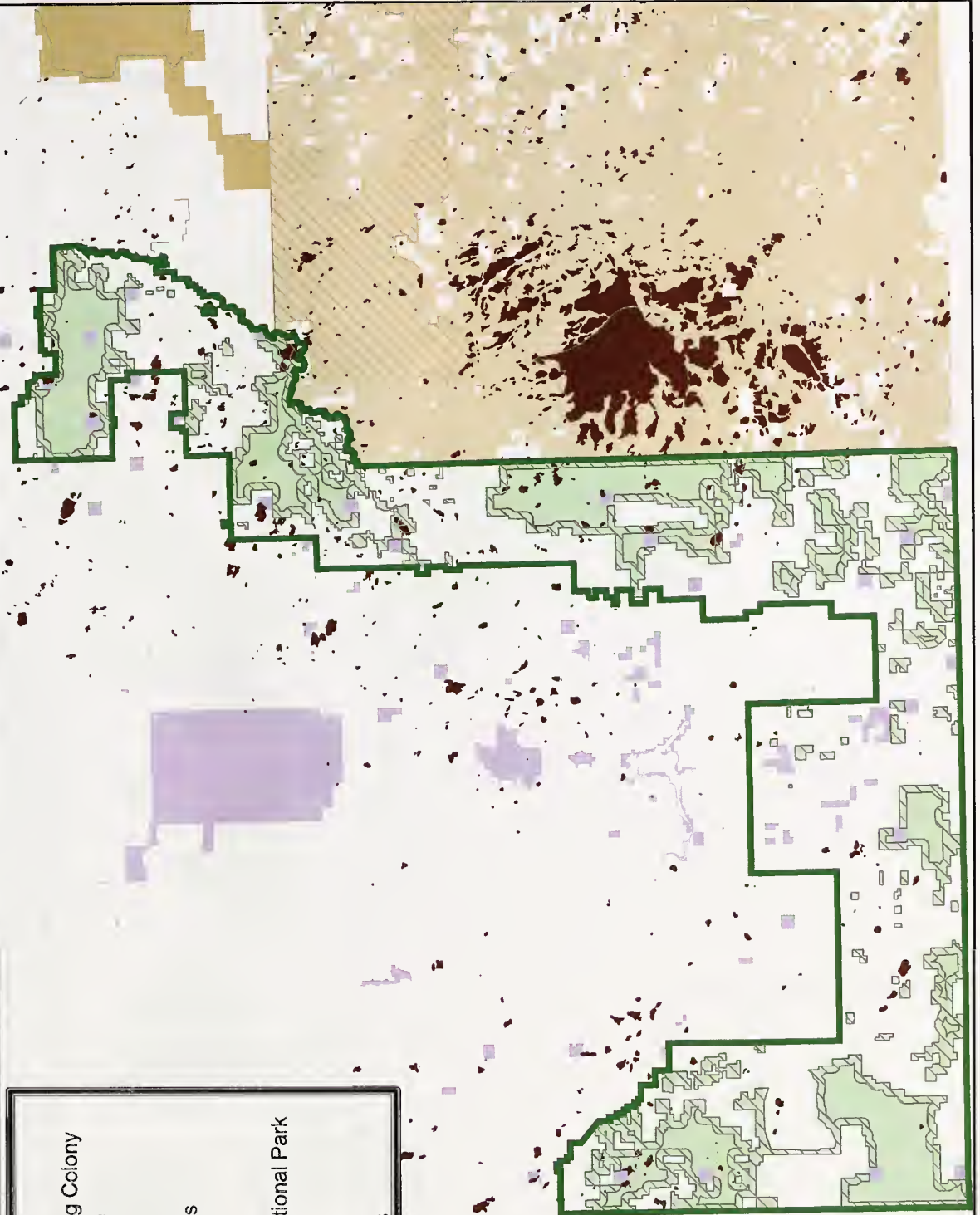


Legend

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

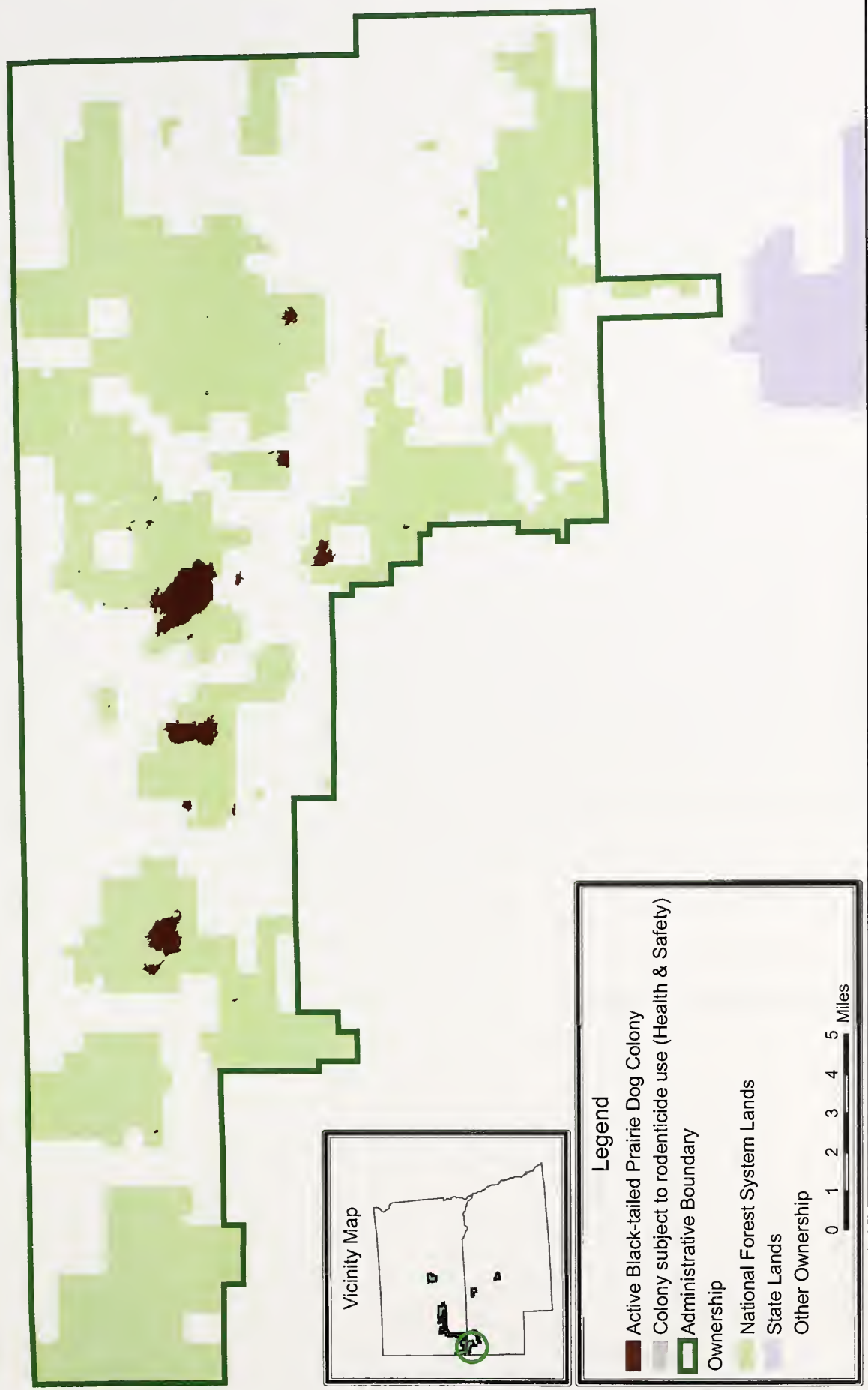
Vicinity Map







Alternative One  
(Non-Lethal Management Tools Emphasized)  
Oglala National Grassland

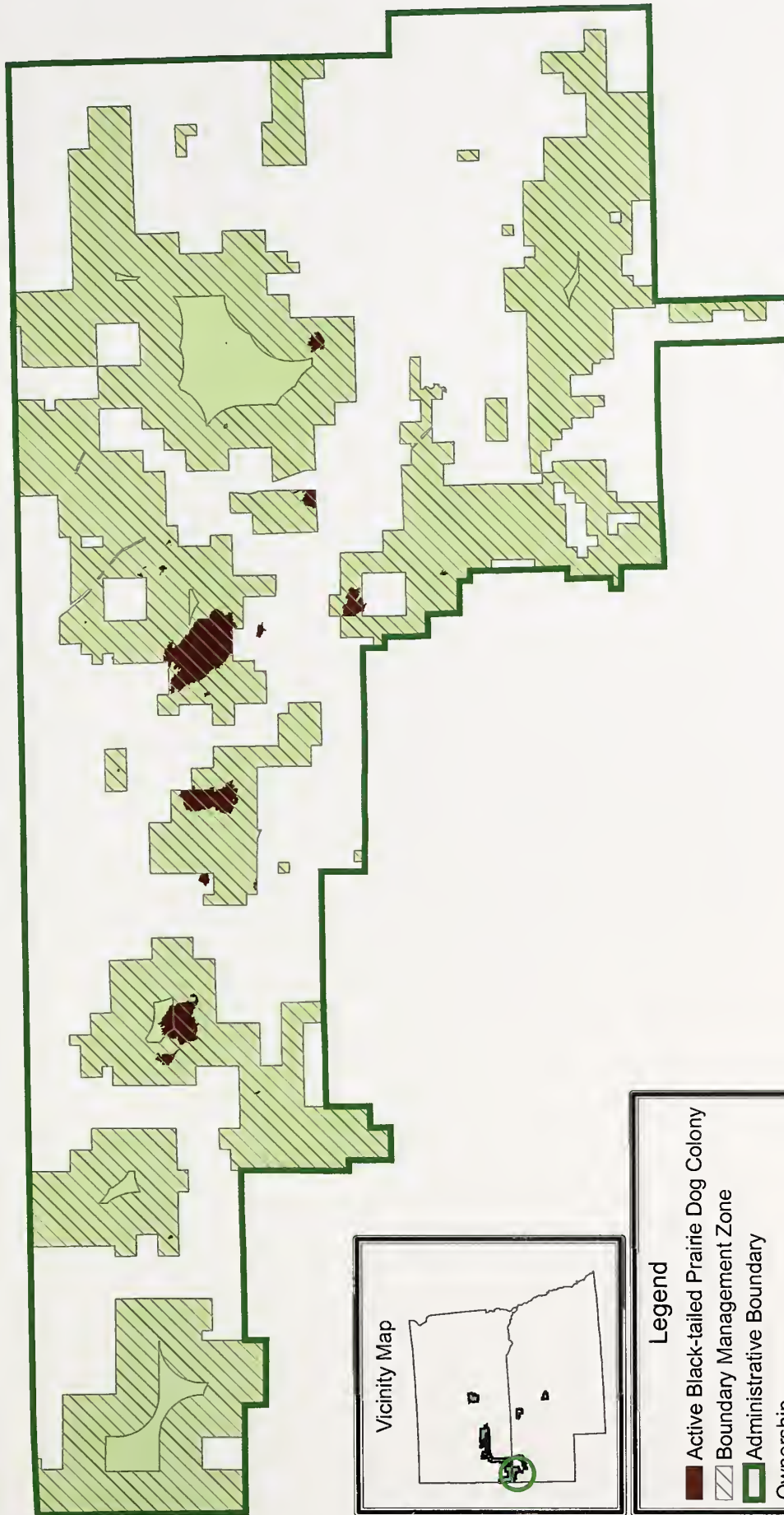








# Alternative Two (One Mile Boundary Management Zone) Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- Ownership
- National Forest System Lands
- State Lands
- Other Ownership

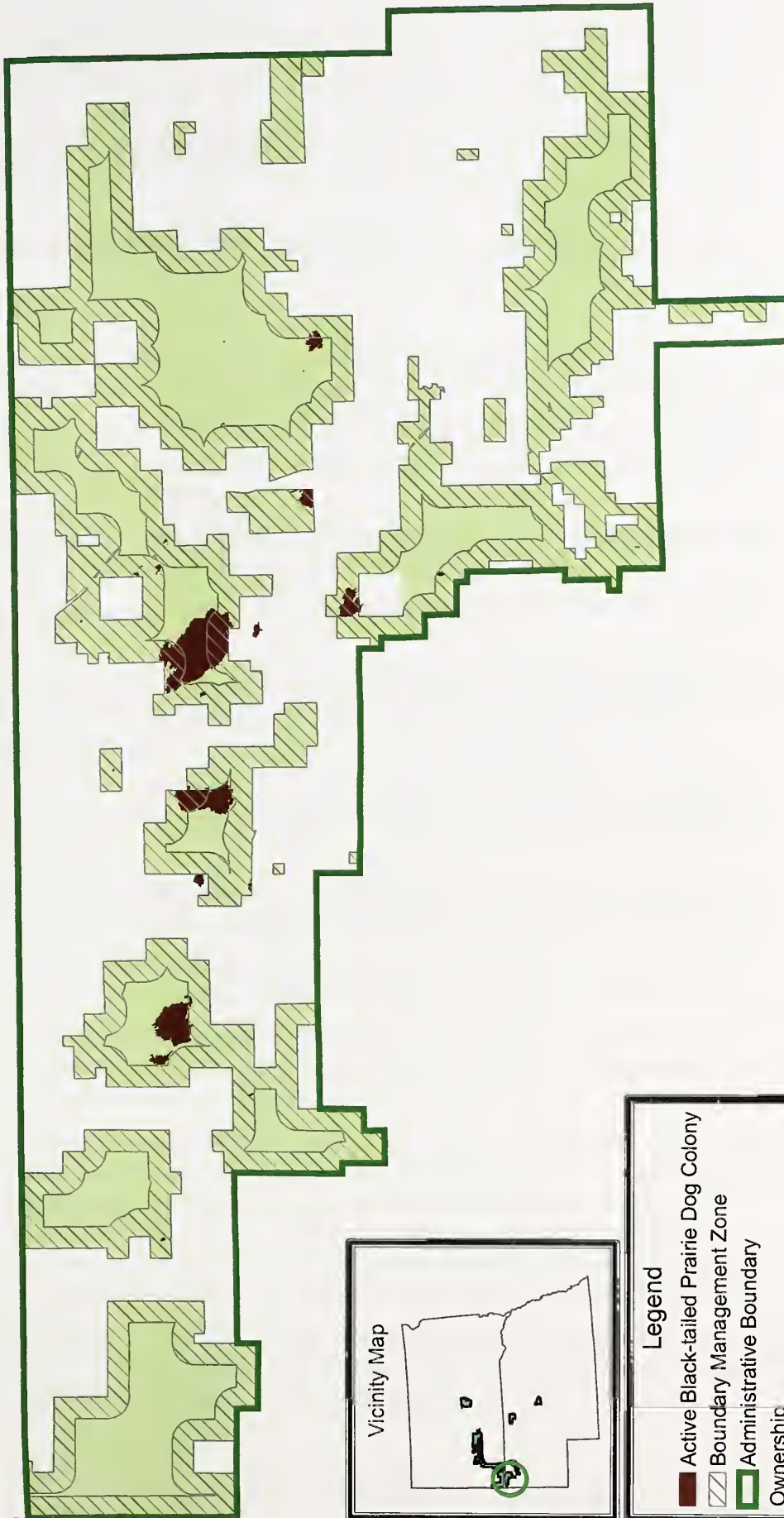
0 1 2 3 4 5 Miles







Alternative Three  
(Half-Mile Boundary Management Zone)  
Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Boundary Management Zone
- Administrative Boundary
- Ownership
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles



# APPENDIX B

## IMPLEMENTATION PLAN

### BLACK-TAILED PRAIRIE DOG CONSERVATION AND MANAGEMENT

#### ALTERNATIVE 1

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Limited Rodenticide Use

**Conservation.** Current LRMP direction for prairie dog conservation is unchanged and implemented as funding, staffing and priorities allow. Conservation activities underway include but are not limited to:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion while reducing boundary management conflicts,
- Expansion of the prairie dog colony complex (Management Area 3.63) near Smithwick, South Dakota, as potential habitat for future black-footed ferret reintroductions,
- Establishment and maintenance of designated prairie dog colony complexes (conservation focus areas) on the Fort Pierre and Oglala National Grasslands,
- Live-trapping and relocation of prairie dogs for black-footed ferret recovery program and for accelerating prairie dog colony expansion in selected areas.

In addition to the conservation activities just listed, prairie dog shooting closures identified in the LRMP for ferret reintroduction habitat would be implemented in the Smithwick ferret habitat area (Management Area 3.63) in 2005.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools (and limited use of rodenticide) is implemented as appropriate and where it would be most effective over the long-term.



- Non-lethal methods such as vegetation management through livestock grazing modifications are implemented in selected sites to help regulate and manage prairie dog populations. Non-lethal methods are used along property boundaries to reduce colony establishment and expansion rates in these areas. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, to create visual barriers along property boundaries. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If suitable destination sites are available, live-trapping may be used in a few selected colonies along boundaries to remove and relocate prairie dogs. Identification and evaluation of opportunities for landownership adjustment to reduce prairie dog management conflicts with adjoining landowners continues as prescribed in the LRMP.
- Limited use of rodenticide is prescribed and implemented for public health and safety risks and damage to facilities, such as rural residences. Although it has never been confirmed in the project area, a plague epizootic near a rural residence would certainly be considered a health and safety risk. The abundance of rattlesnakes in prairie dog colonies is considered a health and safety issue when colonies expand into and around farm and ranch headquarters and rural residences. Recreational prairie dog shooting near farm and ranch headquarters is also a safety issue. All decisions regarding rodenticide use, including the amount and extent of rodenticide use, on the national grasslands in response to public health and safety risks would be made by the Forest Service after on-site evaluations.
- Review and implement as appropriate the conservation measures common to all alternatives identified below (Section 2.2.5 of the FEIS):
  - 1) Inventory and monitor black-tailed prairie dogs and black-footed ferrets as prescribed in Chapter 4 of the LRMP.
  - 2) Avoid all significant fossil and heritage resource sites when conducting any ground-disturbing projects. Before ground disturbing activities, a Forest Service paleontologist and archeologist would be contacted to review the proposed project to determine if any fossil or heritage resource surveys, reports, or actions are needed.
  - 3) Prior to ground disturbing activities, a journey-level Forest Service biologist/botanist would be contacted to review the proposed project to determine if any biological surveys, reports, or actions are needed.
  - 4) If the predicted range of prairie dog colony acreage listed in Table 3-2 of this document for any national grassland is exceeded, prairie dog management would be revisited. This may involve additional public involvement and environmental analysis.

- 5) If whooping cranes are sighted in an area where rodenticide is being applied, operations will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.
- 6) The U.S. Fish and Wildlife Service will be consulted prior to use of rodenticide or shooting in a national grassland colony in the Conata Basin ferret area that is near private or tribal land and within a mile of black-footed ferret habitat on Badlands National Park.
- 7) Before any on-the-ground management activities (i.e., fencing) occur, review any species at risk timing limitation direction in the LRMP.

**Project-Level Implementation.** There is no additional public disclosure or site-specific analysis requirements if the management tools identified above are applied within the criteria presented in the following table. Project-level implementation of these tools outside the criteria may require additional public disclosure and site-specific evaluation.

**TABLE**  
**Project-Level Implementation Criteria for Alternative 1**

<b>MANAGEMENT TOOL (AREA)</b>	<b>NEPA/NFMA COMPLIANCE</b>	<b>ESA COMPLIANCE</b>	<b>NHPA/PALEO COMPLIANCE</b>
<b>Rodenticide</b>			
All NFS Lands	Compliant if colony is presenting a public health or safety risk, causing damage to a facility, and 2% zinc phosphide grain bait is applied between 10/1 and 12/31	Compliant, additional consultation not required if outside Conata Basin ferret habitat	Not required
Conata Basin Ferret Habitat	See criteria above for "All NFS Lands"	Compliant if colony is unoccupied by ferrets. If occupied consult with FWS.  Requires additional ESA consultation if within a mile of ferret habitat on Badlands National Park	Not required
Smithwick Ferret Habitat	See criteria above for "All NFS Lands"	Compliant, additional consultation not required prior to FWS issuing a proposed rule for reintroduction	Not required
<b>Vegetation Management Through Livestock Grazing Coordination (includes temporary fencing to help create visual vegetation barriers)</b>			
All NFS Lands	Compliant if adjustments are made through annual operating plans	Compliant, additional consultation not required	Requires additional review if significant soil disturbance would occur
<b>Live-trapping</b>			
Ferret Habitat	Compliant if under state and/or federal permits	Compliant, additional consultation not required	Not required
<b>Landownership Adjustment</b>			
All NFS Lands	Requires additional environmental analysis and public disclosure	Requires additional ESA consultation	Requires additional review



# IMPLEMENTATION PLAN

## BLACK-TAILED PRAIRIE DOG CONSERVATION AND MANAGEMENT

### ALTERNATIVE 2

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use Along Property Boundaries (1.0 Mile Boundary Management Zone).

**Conservation.** Some of the LRMP direction for prairie dog conservation continues to be implemented as funding, staffing and priorities allow. This direction includes but is not limited to:

- Maintain the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction area (Management Area 3.63),
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. However, successful establishment of a prairie dog colony complex under this alternative that is large enough to support a ferret reintroduction in this area would likely require conservation agreements for additional active colony acreage on adjoining lands.

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment occurs when a prairie dog colony on national grasslands expands to a point where unwanted colonization of adjoining land occurs and is unwanted by the landowner and/or manager. This definition is taken from the South Dakota Black-tailed Prairie Dog Conservation and Management Plan.

- Non-lethal tools under this alternative also include landownership adjustment, financial incentives and conservation easements. On-site evaluations of complaint areas identifying opportunities for landownership adjustment with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the annual LRMP Monitoring and Evaluation Report. Financial incentives and conservation easements would involve government agencies and private organizations working with willing landowners to find ways of conserving prairie dogs on their lands and national grasslands.

- Non-lethal methods would be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of the rodenticide. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual barriers. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used will also provide additional forage, especially during low precipitation periods (drought), for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure would be conducted as appropriate. Use of physical prairie dog barriers or live-trapping and relocation of prairie dogs may also be used in a few selected areas.
- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in selected colonies in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help reduce prairie dog populations along boundaries to reduce unwanted colonization of adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, acceptable ammunition, and season and shooting hours in selected colonies. It also includes the necessary enforcement and oversight by the Forest Service. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps reduce prairie dog populations in both interior and boundary colonies on national grasslands.
- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. Forest Service defers decisions on prairie dog shooting restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states.
- Rodenticide use could extend a maximum of one mile into national grasslands from private or tribal property boundaries. This does not apply to boundaries along state school lands, Badlands National Park and other federal lands. All rodenticide use on the national grasslands would be in response to valid



complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries and encroachment from a national grassland colony. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The appropriate response to each complaint involving a national grassland colony would be determined by the Forest Service after on-site evaluations and coordination with landowners and South Dakota Departments of Agriculture and Game, Fish and Parks. In Nebraska, on-site evaluations would likely be conducted with landowners and officials from the Game and Parks Commission and USDA Animal and Plant Health Inspection Service.

Decisions not to use rodenticide in response to some complaints may occur where encroachment is not evident or for a variety of other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.
- Additional criteria apply on some areas before rodenticide use would be authorized. Rodenticide use in the Conata Basin black-footed ferret reintroduction area could only extend to a mile if minimum black-footed ferret population thresholds continue to be met. These thresholds, based on current information, indicate that between 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005). If the minimum thresholds are not being met, rodenticide use would not occur or would be limited to less than a mile from adjoining lands. The black-footed ferret minimum threshold for Conata Basin is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

**Project-Level Implementation.** The full suite of wildlife damage management tools identified above would be applied under a prairie dog management plan. The successful application of these tools is highly dependent on effective and timely monitoring of prairie dog colony distributions and dynamics. In the Conata Basin ferret reintroduction habitat, monitoring of prairie dog densities and ferret populations and survival is also critically important for the prairie dog adaptive management plan to be effective. The prairie dog management tools are:



- Financial incentives, conservation agreements, or landownership adjustments are the initial tools of choice to resolve prairie dog problems in complaint areas along the following emphasis boundary areas: 1) inholdings in MA 3.63; 2) lands adjoining MA 3.63 with chronic unwanted colonization; 3) inholdings in the Oglala and Fort Pierre prairie dog colony complex areas; and 4) lands adjoining the colony complex prairie dog colonies. These solutions may involve other government agencies or private organizations that facilitate financial incentives or compensation, conservation agreements or conservation easements with willing landowners.
- If the initial tools of choice do not present a viable and timely solution for a boundary complaint area, rodenticide and vegetation management are then considered primary and applied as appropriate. Rodenticide use should be considered concurrent with a vegetation management evaluation and if appropriate, modifications in livestock grazing strategies.
- Live-trapping to remove prairie dogs for the black-footed ferret recovery program, or relocation to a more desirable location is a secondary tool for consideration in the Conata Basin ferret habitat. Because of the expense and difficulty in finding suitable prairie dog relocation sites, use of live-trapping is expected to be very limited.
- Regulated shooting is another secondary tool to consider in selected colonies along the boundaries of the Conata Basin ferret reintroduction area.
- Visual or physical barriers have considerable non-lethal appeal but only have limited effectiveness and would be utilized primarily in reoccurring complaint areas.
- During low precipitation periods (drought), implement light livestock grazing intensities and/or other grazing modifications in complaint areas as appropriate. During severe or extended droughts, remove livestock from the national grasslands in complaint areas to help reduce successful prairie dog dispersal and colony expansion and establishment. However, it needs to be recognized that the effects of these drought contingencies on the population recovery rate in recently poisoned colonies within complaint areas are difficult to accurately predict. Repeat rodenticide applications may be needed to prevent eventual population recovery in recently poisoned colonies.
- Review and implement as appropriate the conservation measures common to all alternatives identified below (Section 2.2.5 of the FEIS):
  - 1) Inventory and monitor black-tailed prairie dogs and black-footed ferrets as prescribed in Chapter 4 of the LRMP.
  - 2) Avoid all significant fossil and heritage resource sites when conducting any ground-disturbing projects. Before ground disturbing activities, a Forest Service paleontologist and archeologist would be contacted to review the proposed project to determine if any fossil or heritage resource surveys, reports, or actions are needed.

- 3) Prior to ground disturbing activities, a journey-level Forest Service biologist/botanist would be contacted to review the proposed project to determine if any biological surveys, reports, or actions are needed.
- 4) If the predicted range of prairie dog colony acreage listed in Table 3-2 of this document for any national grassland is exceeded, prairie dog management would be revisited. This may involve additional public involvement and environmental analysis.
- 5) If whooping cranes are sighted in an area where rodenticide is being applied, operations will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.
- 6) The U.S. Fish and Wildlife Service will be consulted prior to use of rodenticide or shooting in a national grassland colony in the Conata Basin ferret area that is near private or tribal land and within a mile of black-footed ferret habitat on Badlands National Park.
- 7) Before any on-the-ground management activities (i.e., fencing) occur, review any species at risk timing limitation direction in the LRMP.

There is no additional public disclosure or site-specific analysis requirements if the management tools identified above are applied within the criteria presented in the following table. Project-level implementation of these tools outside the criteria may require additional public disclosure and site-specific evaluation.

**TABLE**  
**Project-Level Implementation Criteria for Alternative 2**

<b>MANAGEMENT TOOL (AREA)</b>	<b>NEPA/NFMA COMPLIANCE</b>	<b>ESA COMPLIANCE</b>	<b>NHPA/PALEO COMPLIANCE</b>
<b>Rodenticide</b>			
All NFS Lands	<p>Compliant if colony is presenting a public health or safety risk, causing damage to a facility, and 2% zinc phosphide grain bait is applied between 10/1 and 1/31</p> <p>Compliant if colony is within designated boundary management zones; encroaching or would likely encroach on adjoining lands in the near future; and 2% zinc phosphide grain bait is applied between 10/1 and 1/31</p>	Compliant, additional consultation not required if outside Conata Basin ferret habitat and NEPA compliant	Not required
Conata Basin Ferret Habitat	See criteria above for "All NFS Lands"	<p>Compliant if monitoring indicates that the ferret family rating of 200 is maintained or exceeded</p> <p>Compliant if colony is unoccupied by ferrets. If occupied, consult with FWS.</p> <p>Requires additional ESA consultation if within a mile of ferret habitat on Badlands National Park</p>	Not required
Smithwick Ferret Habitat	See criteria above for "All NFS Lands"	No additional consultation needed prior to FWS issuing a proposed rule for reintroduction	Not required
<b>Shooting</b>			
Conata Basin Ferret Habitat	Compliant if in boundary management zones	<p>Compliant if in boundary management zones</p> <p>Requires additional ESA consultation if within a mile of ferret habitat on Badlands National Park</p>	Not required
Smithwick Ferret Habitat	Compliant	Compliant	Not required
All Other NFS Lands	Not required (defer to states)	Not required	Not required



MANAGEMENT TOOL (AREA)	NEPA/NFMA COMPLIANCE	ESA COMPLIANCE	NHPA/PALEO COMPLIANCE
<b>Vegetation Management Through Livestock Grazing Coordination (includes temporary fencing to help create visual vegetation barriers)</b>			
All NFS Lands	Compliant if adjustments are made through annual operating plans	Compliant, additional consultation not required	Requires additional review if significant soil disturbance would occur
<b>Other Visual/Physical Barriers</b>			
All NFS Lands	May require additional environmental analysis and public disclosure if significant soil disturbance would occur	Compliant, additional consultation not required	Requires additional review if significant soil disturbance would occur
<b>Live-trapping</b>			
All NFS Lands	Compliant if under state and/or federal permit	Compliant if under state and/or federal permit	Not required
<b>Financial Incentives/Conservation Easements</b>			
All NFS Lands	This would be between other agencies, organizations and willing landowners. Therefore, there are no NEPA/NFMA regulatory requirements for FS.	Not required	Not required
<b>Landownership Adjustment</b>			
All NFS Lands	Requires additional environmental analysis and public disclosure	Requires additional ESA consultation	Requires additional review

## IMPLEMENTATION PLAN

### BLACK-TAILED PRAIRIE DOG CONSERVATION AND MANAGEMENT

#### ALTERNATIVE 3

**Summary Description:** Prairie Dog Conservation Concurrent with Population Regulation and Management through Non-Lethal Methods and Expanded Rodenticide Use along Property Boundaries (0.25 Mile Boundary Management Zone – Fort Pierre National Grassland; and 0.5 Mile Boundary Management Zone – Oglala and Buffalo Gap National Grasslands).

**Conservation.** Most LRMP direction for prairie dog conservation is implemented as funding, staffing and priorities allow. Modifications are made to some conservation measures prescribed in the LRMP including the shooting and rodenticide prohibitions in black-footed ferret reintroduction habitat (Management Areas 3.63).

Priority conservation activities implemented under this alternative include:

- Expansion of the prairie dog colony complex in the Conata Basin black-footed ferret reintroduction habitat (Management Area 3.63),
- Identification and implementation of opportunities for landownership adjustment to facilitate prairie dog population expansion,
- Modified prairie dog shooting closure in Conata Basin black-footed ferret reintroduction habitat,
- Establishment and intensive management of prairie dog colony complexes on Fort Pierre and Oglala National Grasslands,
- Third party solutions with willing landowners.

The LRMP also prescribes development of black-footed ferret reintroduction habitat on the Buffalo Gap National Grassland near Smithwick, South Dakota. Under this action, successful establishment of a prairie dog colony complex that is large enough to support a ferret reintroduction in this area may take more than 10 years or may require conservation agreements for additional active colony acreage on adjoining lands.

The colony complexes mentioned above, one each on the Fort Pierre and Oglala National Grasslands, need to meet design criteria specified in the LRMP to help ensure long-term persistence of prairie dog populations on those areas. The complex criteria are a minimum of 1,000 acres in at least 10 colonies located no greater than 6 miles apart (inter-colony distance). These criteria closely follow recommendations presented in the Multi-State Conservation Plan for the Black-tailed Prairie Dog (Luce 1999 and 2003).

**Boundary Management.** LRMP direction to manage prairie dog populations using non-lethal management tools is implemented as appropriate and where it would be most effective over the long-term. Rodenticide use in boundary management zones is added under this alternative as a primary tool for use on prairie dog colonies that encroach onto adjoining agricultural lands. Encroachment is defined as a national grassland colony that extends across a private or tribal property boundary or would likely cross a property

boundary within 1 to 2 years. By stopping colonies just before they encroach on an adjoining landowner, the number of chronic problem areas likely to develop and the amount of rodenticide and other management actions requested and needed in the future should be substantially reduced.

Some questions to consider for determining encroachment of prairie dogs and the need to implement various boundary zone management options:

- To what extent is the prairie dog colony on national grassland contributing to unwanted colonization of the adjoining lands?
- Has the colony on national grassland expanded onto the adjoining lands and are the colonized areas on the national grasslands and adjoining lands contiguous?
- If the colony has not expanded across the property boundary, will it likely do so within the next year or two?
- Is the landowner willing to consider third party solutions to help resolve the complaint?
- Are there opportunities for a possible landownership adjustment for long-term resolution of the complaint?
- Are local range conditions on the national grasslands suitable for vegetation management activities through livestock grazing coordination to assist long-term management of the colony?
- Will (or has) rodenticide use occur on adjacent private or tribal property, and will our (Forest Service) rodenticide use actions be effective?

These on-site evaluation reports through coordination with other entities (including landowners) will be submitted to the respective district ranger for final resolution and retained in the official files at the respective district office. After reviewing each evaluation report, the district ranger will develop a set of actions consistent with this decision for addressing each complaint and additional documentation as to how those actions were carried out. Additional site-specific NEPA will be initiated where analysis suggests that probable action is outside the scope of this decision. The colonies are routinely measured on a 3-year cycle. After each cycle the evaluation will be updated.

Based on site-specific conditions and knowledge, the above questions and associated evaluation reports are used to adapt management actions. These management actions may range from short-term to long-term (i.e. rodenticide use to vegetation management to land adjustments). The initial management actions are prescribed to likely achieve desired conditions in a timely manner. Adaptive management provides forward thinking (i.e. drought issues) and if monitoring shows that desired conditions are not being met, then an alternate set of management actions would be implemented to achieve the desired results.

More detailed information on how prairie dog management tools would be used in boundary management zones follows:

- Non-lethal management tools include landownership adjustment and third party solutions. On-site evaluations of complaint areas identifying opportunities for



landownership adjustment and third party solutions with willing landowners in problematic complaint areas would be a high priority, especially in black-footed ferret habitat and the designated prairie dog colony complexes on the Fort Pierre and Oglala National Grasslands. As prescribed in the LRMP, progress in initiating and completing landownership adjustments with willing landowners to facilitate prairie dog conservation and management would be reported in the annual LRMP Monitoring and Evaluation Report. Third party solutions involve other government agencies or private organizations that provide innovative solutions to help conserve prairie dogs on their lands and national grasslands. These solutions include but are not limited to financial incentives, conservation agreements and easements with willing landowners, and other tools identified in the national black-tailed prairie dog conservation assessment and strategy (Van Pelt 1999).

- Non-lethal methods would also be used concurrently, where appropriate, with rodenticide along property boundaries to augment long-term effectiveness of rodenticides. For example, this may include the use of temporary vegetation management fencing to help manage livestock grazing, including livestock removal, in boundary management zones to create visual (vegetation) barriers. Fencing would be determined on a case-by-case basis, taking into consideration factors such as the rate of prairie dog expansion, soils, precipitation trends, and vegetative species composition. Areas where vegetation management fencing is used would also provide additional forage, especially during low precipitation and drought conditions, for prairie dogs in an attempt to help reduce prairie dog dispersal to other lands. If more long-term adjustments are needed in livestock grazing management to facilitate the effectiveness of prairie dog management, additional environmental analyses and public disclosure may be conducted as appropriate. Use of visual and physical prairie dog barriers may also be used in selected areas.
- Non-lethal tools may be applied along boundaries with private inholdings (private lands surrounded by federal lands), small isolated tracts, especially in black-footed ferret reintroduction habitat and designated prairie dog colony complexes.
- Regulated shooting in the Conata Basin black-footed ferret habitat may be authorized in the boundary management zone if minimum ferret population thresholds continue to be met and the authorized level of incidental take, as specified in a Biological Opinion (April 5, 1994) by the U.S. Fish and Wildlife Service for the Conata Basin black-footed ferret reintroduction, is not likely to be exceeded. This would require a modification to the current Forest Service shooting closure. The intent is to help regulate prairie dog populations along boundaries to reduce unwanted impacts on adjoining lands. Regulated shooting involves, but is not limited to, specifying the number of shooters, type of ammunition, and season and shooting hours for selected colonies. It also includes the necessary enforcement and oversight. The Forest Service shooting closure is retained for the interior portions of Conata Basin ferret habitat. Recreational prairie dog shooting outside occupied black-footed ferret reintroduction habitat continues under State regulatory authorities and helps

regulate prairie dog populations in both interior and boundary colonies on national grasslands. Conata Basin colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.

- The Forest Service shooting closure prescribed in the LRMP for black-footed ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, a Forest Service shooting closure would not be implemented in this area until progress is made in initiating a cooperative ferret reintroduction plan. A Forest Service shooting closure would be implemented if annual increases needed to achieve ferret habitat objectives are not being met. Forest Service defers decisions on prairie dog shooting restrictions on national grasslands outside active black-footed ferret reintroduction habitat to the states. Smithwick colonies, as with all other colonies, will be monitored on a 3-year cycle as a minimum.
- Landownership patterns, forage productivity, and prairie dog distribution are different between the Fort Pierre, Buffalo Gap and Oglala National Grasslands, so guidance on rodenticide use is not consistent across the national grasslands. This is necessary to balance the need for prairie dog conservation with concerns of adjoining landowners. Boundary management zones on the Buffalo Gap and Oglala National Grasslands where rodenticide and other management tools could be used to reduce unwanted colonization of adjoining lands extend a maximum of 0.5 miles from private or tribal property boundaries into the national grasslands. The boundary management zone on the Fort Pierre National Grassland is set at a lesser width of 0.25 miles (maximum) to avoid elimination of most colonies and due to the limited encroachment problems. Boundary management zones are set up only along private or tribal lands and not along state school lands, Badlands National Park or other federal lands.
- Rodenticide use would occur on the national grasslands to prevent encroachment (as defined) in response to valid complaints from adjoining landowners that can demonstrate colonization on their lands along property boundaries or imminent (1 to 2 years) colonization and that a national grassland colony is a significant contributor to the colonization. On the Buffalo Gap and Fort Pierre National Grasslands, the complaint process is initiated through the State of South Dakota. The Forest Service would determine the appropriate response to each complaint involving a national grassland colony after an on-site evaluation.

Decisions where rodenticide use would not occur or would be limited to less than specified distances may occur in response to: 1) complaints where encroachment is not evident; 2) in accordance with Appendix E Biological Assessment and the USFWS letter of concurrence; or 3) for other site-specific reasons.

- Rodenticide may also be used in response to public health and safety risks and damage to facilities. This could occur along property boundaries or within interior areas of national grasslands and forests.
- Unique circumstances involving chronic colony-specific encroachment problems may warrant exceeding the specified distances, but these rare exceptions would

only be made if additional environmental analyses and public disclosure were conducted. For example:

- Rodenticide use in the Conata Basin black-footed ferret reintroduction area could extend beyond the specified distance if minimum black-footed ferret population thresholds continue to be met. The minimum threshold for Conata Basin is maintaining a 200 ferret family rating on Federal lands capable of supporting at least 100 breeding adults, which will be monitored annually during the summer prior to any control work. These thresholds, based on current information, indicate that between and at a minimum 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005).
- Rodenticide use on Oglala and Fort Pierre National Grasslands (0.5 and 0.25 mile boundary management zones respectively) could only extend beyond the specified distances if reasonable progress can be demonstrated in establishing the prairie dog colony complexes prescribed in the LRMP for both areas. Reasonable progress is achieved when long-term trends in active prairie dog colony acreage remain above the 1996–98 colony acreages used in the LRMP FEIS analyses.

Prairie dog rodenticide along property boundaries is not proposed under this action on the Bessey Ranger District (including the Samuel R. McKelvie National Forest) and the National Forest portion of the Pine Ridge Ranger District. Only non-lethal tools would be considered to address adjoining landowner complaints about encroachment on these areas. These areas currently do not support prairie dog colonies, but if colonies establish in the future along property boundaries, only non-lethal methods would be considered to help address adjoining landowner complaints. Any proposed use of rodenticide in these areas would require additional environmental analysis and public disclosure.

**Project-Level Implementation.** The full suite of wildlife damage management tools identified above would be applied under an adaptive management plan. The successful application of this plan is highly dependent on effective and timely monitoring of prairie dog colony distributions and dynamics. In the Conata Basin ferret reintroduction habitat, monitoring of prairie dog densities and ferret populations and survival is also critically important for the prairie dog adaptive management plan to be effective. The adaptive management tools are:

- Third party solutions and landownership adjustments are the initial long-term tools of choice to resolve prairie dog problems in complaint areas along the following emphasis boundary areas: 1) inholdings in MA 3.63; 2) lands adjoining MA 3.63 with chronic unwanted colonization; 3) inholdings in the Oglala and Fort Pierre prairie dog colony complex areas; and 4) lands adjoining the colony complex prairie dog colonies. Third party solutions involve other government agencies or private organizations that facilitate financial incentives or compensation, conservation agreements or conservation easements with willing landowners.



- If the initial tools of choice do not present a viable and timely solution for a boundary complaint area, rodenticide and vegetation management are then considered primary and applied as appropriate. Rodenticide use should be considered concurrent with a vegetation management evaluation and if appropriate, modifications in livestock grazing strategies.
- Live-trapping to remove prairie dogs for the black-footed ferret recovery program, or relocation to a more desirable location is a secondary tool for consideration in the Conata Basin ferret habitat and designated prairie dog colony complexes on the Fort Pierre and Oglala National Grasslands. Because of the expense and difficulty in finding suitable prairie dog relocation sites, use of live-trapping is expected to be very limited.
- Regulated shooting is another secondary tool to consider in selected colonies along the boundaries of the Conata Basin ferret reintroduction area.
- Visual or physical barriers have considerable non-lethal appeal but only have limited effectiveness and would be utilized primarily in reoccurring complaint areas.
- During low precipitation periods (drought), implement light livestock grazing intensities and/or other grazing modifications in complaint areas as appropriate. During severe or extended droughts, remove livestock from the national grasslands in complaint areas to help reduce successful prairie dog dispersal and colony expansion and establishment.
- Review and implement as appropriate the conservation measures common to all alternatives identified below (Section 2.2.5 of the FEIS):
  - 1) Inventory and monitor black-tailed prairie dogs and black-footed ferrets as prescribed in Chapter 4 of the LRMP.
  - 2) Avoid all significant fossil and heritage resource sites when conducting any ground-disturbing projects. Before ground disturbing activities, a Forest Service paleontologist and archeologist would be contacted to review the proposed project to determine if any fossil or heritage resource surveys, reports, or actions are needed.
  - 3) Prior to ground disturbing activities, a journey-level Forest Service biologist/botanist would be contacted to review the proposed project to determine if any biological surveys, reports, or actions are needed.
  - 4) If the predicted range of prairie dog colony acreage listed in Table 3-2 of this document for any national grassland is exceeded, prairie dog management would be revisited. This may involve additional public involvement and environmental analysis.
  - 5) If whooping cranes are sighted in an area where rodenticide is being applied, operations will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the

rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.

- 6) The U.S. Fish and Wildlife Service will be consulted prior to use of rodenticide or shooting in a national grassland colony in the Conata Basin ferret area that is near private or tribal land and within a mile of black-footed ferret habitat on Badlands National Park.
- 7) Before any on-the-ground management activities (i.e., fencing) occur, review any species at risk timing limitation direction in the LRMP.

There is no additional public disclosure or site-specific analysis requirements if the management tools identified above are applied within the criteria presented in the following table. Project-level implementation of these tools outside the criteria may require additional public disclosure and site-specific evaluation.

**TABLE**  
**Project-Level Implementation Criteria for Alternative 3**

<b>MANAGEMENT TOOL (AREA)</b>	<b>NEPA/NFMA COMPLIANCE</b>	<b>ESA COMPLIANCE</b>	<b>NHPA/PALEO COMPLIANCE</b>
<b>Rodenticide</b>			
All NFS Lands	<p>Compliant if colony is presenting a public health or safety risk, causing damage to a facility, and 2% zinc phosphide grain bait is applied between 10/1 and 1/31</p> <p>Compliant if colony is within designated boundary management zone; encroaching or would likely encroach on adjoining lands in the near future; and 2% zinc phosphide grain bait is applied between 10/1 and 1/31</p>	Compliant if outside Conata Basin ferret habitat and NEPA compliant	Not required
Conata Basin Ferret Habitat	See criteria above for "All NFS Lands"	<p>Compliant if monitoring indicates that the ferret family rating of 200 is maintained or exceeded</p> <p>Compliant if colony is unoccupied by ferrets. If occupied consult with FWS.</p> <p>Requires additional ESA consultation if within a mile of ferret habitat on Badlands National Park</p>	Not required
Smithwick Ferret Habitat	See criteria above for "All NFS Lands"	No additional consultation needed prior to FWS issuing a proposed rule for reintroduction	Not required



<b>MANAGEMENT TOOL (AREA)</b>	<b>NEPA/NFMA COMPLIANCE</b>	<b>ESA COMPLIANCE</b>	<b>NHPA/PALEO COMPLIANCE</b>
<b>Shooting</b>			
Conata Basin Ferret Habitat	Compliant if in boundary management zones and shooting is regulated	Compliant if within designated boundary management zones and regulated  Requires additional ESA consultation if within a mile of ferret habitat on Badlands National Park	Not required
Smithwick Ferret Habitat	Not required (defer to states)	Not required  Consultation required once ferrets are proposed for release	Not required
All Other NFS Lands	Not required (defer to states)	Not required	Not required
<b>Vegetation Management Through Livestock Grazing Coordination (includes temporary fencing to help create visual vegetation barriers)</b>			
All NFS Lands	Compliant if adjustments are made through annual operating plans	Compliant	Requires additional review if significant soil disturbance would occur
<b>Other Visual/Physical Barriers</b>			
All NFS Lands	Requires additional environmental analysis and public disclosure if significant soil disturbance would occur	Compliant	Requires additional review if significant soil disturbance would occur
<b>Live-trapping</b>			
All NFS Lands	Compliant if under state and/or federal permit	Compliant if under state and/or federal permit	Not required

MANAGEMENT TOOL (AREA)	NEPA/NFMA COMPLIANCE	ESA COMPLIANCE	NHPA/PALEO COMPLIANCE
<b>Financial Incentives/Conservation Agreements/Third Party Solutions</b>			
All NFS Lands	Forest Service could assist but this does not require an agency decision. Therefore, there are no NEPA/NFMA regulatory requirements.	Forest Service could assist but this does not require an agency decision. Therefore, there are no ESA consultation requirements.	Forest Service could assist but this does not require an agency decision. Also, this does not involve any soil disturbing activities. Therefore, there are no additional review requirements.
<b>Landownership Adjustment</b>			
All NFS Lands	Requires additional environmental analysis and public disclosure	Requires additional ESA consultation	Requires additional review





# APPENDIX C

## LRMP AMENDMENT

The following tables identify current LRMP direction that is proposed to be deleted (left column) under Alternatives 2 and 3. This current direction will be revised, replaced in whole, or have no replacement direction (right column).

### ALTERNATIVE 2

Item #	Delete:	Revise or Replace With:
#1	<b>Chapter 1, F-21.</b> Any net loss of suitable black-footed ferret habitat as a result of prairie dog poisoning or development of new facilities within colonies shall be replaced within the year. This is based on the amount of suitable habitat available prior to prairie dog dispersal in the year of the poisoning or development. <b>Standard</b>	Standard removed with no replacement (this standard will be addressed in the following revised standard found on page C-5).  <b>Chapter 3, Management Area 3.63, General – 1 (revised).</b>
#2	<b>Chapter 1, F-42.</b> Restrict prairie dog shooting where significant risks have been identified for other wildlife species or where shooting is preventing or slowing a desired prairie dog population expansion. Restrictions shall be year-long or seasonal, and dates of seasonal restrictions shall vary depending on the species at risk. Coordinate and consult with the appropriate wildlife agencies prior to implementation of restrictions. <b>Guideline</b>	Guideline removed with no replacement. (defer to state authority for regulatory actions outside black-footed ferret habitat)
#3	<b>Chapter 1, H-1. 1.</b> Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations: <ul style="list-style-type: none"> <li>▪ Public health and safety risks occur in the immediate area,</li> <li>▪ Damage to private and public facilities, such as cemeteries and residences. <b>Standard</b></li> </ul>	<b>Chapter 1, H-1 (revised). 1.</b> Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations: <ul style="list-style-type: none"> <li>▪ Public health and safety risks occur in the immediate area,</li> <li>▪ Damage to private and public facilities, such as cemeteries and residences.</li> <li>▪ To respond to unwanted prairie dog colonization on adjoining agricultural lands. <b>Standard</b></li> </ul>

## ALTERNATIVE 2

Item #	Delete:	Revise or Replace With:
#4	<p><b>Chapter 1, H-2.</b> Consult state-wide prairie dog conservation strategies for additional guidance on the appropriate response to complaints of unwanted prairie dog colonization on adjoining agricultural lands (private, state, and tribal lands). <b>Guideline</b></p>	<ul style="list-style-type: none"> <li>• <b>Chapter 1, H-2 (revised).</b> Determine the appropriate response to complaints of unwanted colonization on adjoining agricultural lands. A suite of management tools will be considered based on site-specific evaluations <b>Guideline</b></li> </ul>
#5	<p><b>Chapter 1, H-4.</b> Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to December 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. <b>Standard</b></p>	<p><b>Chapter 1, H-4 (revised).</b> Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to January 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. <b>Standard</b> <i>(Note: Current pesticide application label allows use from July 1 to January 31)</i></p>

## ALTERNATIVE 2

Item #	Delete:	Revise or Replace With:																														
#6	<p><b>Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation</b></p> <table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>5,130</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>76,170</td></tr> </table> <p>See Appendix A – Maps, Proposed change to management area prescription 3.63 Black-footed ferret Reintroduction Habitat.</p>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	5,130	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis	76,170	<p><b>Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation</b></p> <table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>0</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>81,300</td></tr> </table> <p>See Appendix A – Maps, Proposed change to management area prescription 3.63 Black-footed ferret Reintroduction Habitat.</p>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	0	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis	81,300
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#7	<p><b>Chapter 2, Fort Pierre National Grassland, Geographic Area Direction – Objectives, Wildlife, Fish and Rare Plants –1. Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>To increase prairie dog populations and habitat for associated species, establish one or more prairie dog colony complexes in the northeast portion (Sand and Timber Creek drainages) of this geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private and tribal, may be considered part of a complex. <b>Objective</b></li> </ul>	<p>Objective removed with no replacement (colony complex meeting specified criteria is unattainable under Alternative 2)</p>																														



## ALTERNATIVE 2

Item #	Delete:	Revise or Replace With:
#8	<p><b>Chapter 2, Oglala National Grassland, Desired Condition</b></p> <p><b>Prairie Dog Colonies:</b> These areas will be managed to maintain and enhance low structure grassland habitat on 10 to 30 percent of this geographic area to facilitate black-tailed prairie dog expansion.</p>	<p><b>Chapter 2, Oglala National Grassland, Desired Condition</b></p> <p><b>Prairie Dog Habitat:</b> These areas will be managed to maintain and enhance low structure grassland habitat as part of the 10 to 30 percent vegetative structure objective of this geographic area.</p>
#9	<p><b>Chapter 2, Oglala National Grassland, Geographic Area Direction – Objectives, Wildlife, Fish and Rare Plants –1. Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>• To help increase prairie dog populations and habitat for associated species, establish a prairie dog colony complex in the geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, may be considered part of a complex.</li> </ul> <p><b>Objective</b></p>	<p>Objective removed with no replacement (colony complex meeting specified criteria is unattainable under Alternative 2)</p>
#10	<p><b>Chapter 3, Management Area 3.63, General – 1.</b> Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63, General – 1 (revised).</b> Authorize only those uses and activities in the Conata Basin reintroduction area that do not reduce habitat below the level needed to support a long-term sustainable black-footed ferret population.</p> <p>Until habitat is available to support a long-term sustainable black-footed ferret population in the Smithwick reintroduction habitat, do not authorize uses and activities that would prevent annual increases in the prairie dog population. When ferrets are eventually released by the U.S. Fish and Wildlife Service, follow the same direction described above for the Conata Basin area. <b>Standard (see item #13)</b></p>

## ALTERNATIVE 2

Item #	Delete:	Revise or Replace With:
#11	<p><b>Chapter 3, Management Area 3.63 General - 2.</b> Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies. <b>Standard</b></p>	<p>Standard removed with no replacement. (This is a redundant standard, and other black-footed ferret occupancy standards have been changed).</p>
#12	<p><b>Chapter 3, Management Area 3.63 Fish and Wildlife-1.</b> Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. The conditions when prairie dog poisoning may be authorized are presented in Chapter 1. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63 Fish and Wildlife - 1 (revised).</b> Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. <b>Standard</b></p>
#13	<p><b>Chapter 3, Management Area 3.63 Recreation - 1.</b> To help expand and maintain suitable black-footed ferret habitat, prohibit prairie dog shooting. Coordination and consultation with the state wildlife agency will occur prior to any Forest Service actions regarding prairie dog shooting restrictions. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63 Recreation - 1 (revised).</b> To help expand and maintain suitable and secure black-footed ferret habitat in the Conata Basin reintroduction area, prohibit prairie dog shooting. However, regulated shooting may be allowed in selected areas along property boundaries to help reduce unwanted colonization of adjoining agricultural lands. Apply this same direction to the Smithwick reintroduction habitat once progress has been made in initiating a cooperative black-footed ferret recovery plan for the area. Coordination with the state wildlife agency would occur prior to any Forest Service actions regarding prairie dog shooting closures. <b>Standard</b></p>

## ALTERNATIVE 3

Item #	Delete:	Revise or Replace With:
#14	<b>Chapter 1, F-21.</b> Any net loss of suitable black-footed ferret habitat as a result of prairie dog poisoning or development of new facilities within colonies shall be replaced within the year. This is based on the amount of suitable habitat available prior to prairie dog dispersal in the year of the poisoning or development. <b>Standard</b>	Standard removed with no replacement (this standard will be addressed in the following revised standard found on page C-10).  <b>Chapter 3, Management Area 3.63, General – 1 (revised).</b>
#15	<b>Chapter 1, F-42.</b> Restrict prairie dog shooting where significant risks have been identified for other wildlife species or where shooting is preventing or slowing a desired prairie dog population expansion. Restrictions shall be year-long or seasonal, and dates of seasonal restrictions shall vary depending on the species at risk. Coordinate and consult with the appropriate wildlife agencies prior to implementation of restrictions. <b>Guideline</b>	Guideline removed with no replacement (defer to state authority for regulatory actions outside black-footed ferret habitat)
#16	<b>Chapter 1, H-1. 1.</b> Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations: <ul style="list-style-type: none"><li>▪ Public health and safety risks occur in the immediate area,</li><li>▪ Damage to private and public facilities, such as cemeteries and residences. <b>Standard</b></li></ul>	<b>Chapter 1, H-1 (revised). 1.</b> Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations: <ul style="list-style-type: none"><li>▪ Public health and safety risks occur in the immediate area,</li><li>▪ Damage to private and public facilities, such as cemeteries and residences.</li><li>▪ To respond to unwanted prairie dog colonization on adjoining agricultural lands. <b>Standard</b></li></ul>



## ALTERNATIVE 3

Item #	Delete:	Revise or Replace With:
#17	<b>Chapter 1, H-2.</b> Consult state-wide prairie dog conservation strategies for additional guidance on the appropriate response to complaints of unwanted prairie dog colonization on adjoining agricultural lands (private, state, and tribal lands). <b>Guideline</b>	<ul style="list-style-type: none"> <li>• <b>Chapter 1, H-2 (revised).</b> Determine the appropriate response to complaints of unwanted colonization on adjoining agricultural lands. A suite of management tools will be considered based on site-specific evaluations. <b>Guideline</b></li> </ul>
#18	<b>Chapter 1, H-4.</b> Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to December 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. <b>Standard</b>	<b>Chapter 1, H-4 (revised).</b> Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to January 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. <b>Standard</b> ( <i>Note: Current pesticide application label allows use from July 1 to January 31</i> )
#19	<b>Chapter 2, Oglala National Grassland, Desired Condition</b>  <b>Prairie Dog Colonies:</b> These areas will be managed to maintain and enhance low structure grassland habitat on 10 to 30 percent of this geographic area to facilitate black-tailed prairie dog expansion.	<b>Chapter 2, Oglala National Grassland, Desired Condition</b>  <b>Prairie Dog Habitat:</b> These areas will be managed to maintain and enhance low structure grassland habitat as part of the 10 to 30 percent vegetative structure objective of this geographic area.

## ALTERNATIVE 3

Item #	Delete:	Revise or Replace With:																														
#20	<p><b>Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation</b></p> <table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>5,130</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>76,170</td></tr> </table> <p>See Appendix A – Maps, Proposed change to management area prescription 3.63 Black-footed ferret Reintroduction Habitat.</p>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	5,130	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis	76,170	<p><b>Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation</b></p> <table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>0</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>81,300</td></tr> </table> <p>See Appendix A – Maps, Proposed change to management area prescription 3.63 Black-footed ferret Reintroduction Habitat.</p>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	0	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis	81,300
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#21	<p><b>Chapter 3, Management Area 3.63, General – 1.</b> Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63, General – 1 (revised).</b> Authorize only those uses and activities in the Conata Basin reintroduction area that do not reduce habitat below the level needed to support a long-term sustainable black-footed ferret population.</p> <p>Until habitat is available to support a long-term sustainable black-footed ferret population in the Smithwick reintroduction habitat, do not authorize uses and activities that would prevent annual increases in the prairie dog population. When ferrets are eventually released by the U.S. Fish and Wildlife Service, follow the same direction described above for the Conata Basin area. <b>Standard [see item # 24]</b></p>																														

## ALTERNATIVE 3

Item #	Delete:	Revise or Replace With:
#22	<p><b>Chapter 3, Management Area 3.63 General - 2.</b> Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies. <b>Standard</b></p>	<p>Standard removed with no replacement. (This is a redundant standard, and other black-footed ferret occupancy standards have been changed).</p>
#23	<p><b>Chapter 3, Management Area 3.63 Fish and Wildlife-1.</b> Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. The conditions when prairie dog poisoning may be authorized are presented in Chapter 1. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63 Fish and Wildlife – 1 (revised).</b> Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. <b>Standard</b></p>
#24	<p><b>Chapter 3, Management Area 3.63 Recreation - 1.</b> To help expand and maintain suitable black-footed ferret habitat, prohibit prairie dog shooting. Coordination and consultation with the state wildlife agency will occur prior to any Forest Service actions regarding prairie dog shooting restrictions. <b>Standard</b></p>	<p><b>Chapter 3, Management Area 3.63 Recreation - 1 (revised).</b> To help expand and maintain suitable and secure black-footed ferret habitat in the Conata Basin reintroduction area, prohibit recreational prairie dog shooting. However, regulated shooting may be allowed in selected areas along property boundaries to help reduce unwanted colonization of adjoining agricultural lands. Apply this same direction to the Smithwick reintroduction habitat once progress has been made in initiating a cooperative black-footed ferret recovery plan for the area. Coordination with the state wildlife agency would occur prior to any Forest Service actions regarding prairie dog shooting closures. <b>Standard</b></p>





## APPENDIX D

### IMPLEMENTATION COSTS FOR FULL SUITE OF MANAGEMENT TOOLS

Some of the costs in this appendix are based on a predictive model. Actual acres and on-the-ground costs may vary.

#### Inventory and Monitoring

Average annual costs for inventory and monitoring of prairie dogs and black-footed ferrets include GPS/GIS mapping, prairie dog density surveys, pre-treatment ferret surveys and required ferret relocation work.

Alternative 1 - 10,000 acres @ \$5/acre = \$50,000

Alternative 2 - 11,000 acres @ \$5/acre = \$55,000

Alternative 3 - 10,000 acres @ \$5/acre = \$50,000

#### Rodenticide

Average annual costs include rodenticide, pre-bait, application, contract preparation, administration, and supervision.

Alternative 1 - 400 acres @ \$15/acre = \$6,000

Alternative 2 - 10,900 acres @ \$15/acre = \$164,000

Alternative 3 - 8,400 acres @ \$15/acre = \$126,000

#### Management of Limited and Regulated Recreational Prairie Dog Shooting

(Management of regulated prairie dog shooting includes signing, law enforcement personnel and vehicles for MA 3.63 in Conata Basin)

Alternative 1 - Not Applicable

Alternative 2 - \$50,000

Alternative 3 - \$50,000

#### Vegetation Management Fencing

Management fencing includes materials and construction costs.

Alternative 1 - 70 miles @ \$2,500/mile = \$175,000

Alternative 2 - 25 miles @ \$2,500/mile = \$62,500

Alternative 3 - 25 miles @ \$2,500/mile = \$62,500

### Land Adjustment Program and Third Party Solutions

Land adjustment costs vary dependent upon the size and complexity of the land exchange case. Costs could be reduced through the use of consolidated land exchanges or third party land exchanges. Third party solution costs will vary greatly depending on the type of solution and the period of time for conservation agreements.

### Summary of Implementation Costs

The total implementation costs for each alternative will vary dependent on which management tools are emphasized and the mix of management tools utilized to achieve boundary management for prairie dogs. Land adjustment and third party solutions would likely reduce the annual prairie dog management costs for rodenticide, management fencing, and regulated shooting. Visual buffer fencing and live-trapping prairie dogs for the ferret program or translocation are optional tools that will be used sparingly due to costs and effectiveness.



# **APPENDIX E**

## **BIOLOGICAL ASSESSMENT AND EVALUATION**

# **BIOLOGICAL ASSESSMENT AND EVALUATION<sup>1</sup>**

## **FOR**

### **BLACK-TAILED PRAIRIE DOG CONSERVATION AND MANAGEMENT**

#### **Nebraska National Forest and Associated Units**

Buffalo Gap and Fort Pierre National  
Grasslands, South Dakota

Oglala National Grassland, Nebraska  
National Forest and Samuel R. McKelvie  
National Forest, Nebraska

#### **Prepared and reviewed by:**

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/s/ Glenn Moravek 05/13/2005  
Glenn Moravek, Wildlife Biologist Date:

/s/ Doug Sargent 05/13/2005  
Doug Sargent, Wildlife Biologist/Botanist Date:

/s/ John Sidle 05/13/2005  
John Sidle, Fish and Wildlife Biologist Date:

#### **Submitted to:**

**Donald J. Bright, Forest Supervisor**

<sup>1</sup> Meets the standards for both a Biological Evaluation (FSM 2672.42) and Biological Assessment (50 CFR 402.12(f)).

**May 2005**

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## I. INTRODUCTION

The purpose of this Biological Assessment (BA) and Biological Evaluation (BE) is to determine the likely effects of black-tailed prairie dog (prairie dog) (*Cynomys ludovicianus*) conservation and management on the Nebraska National Forest (NNF) for federally listed species and proposed species under the Endangered Species Act (ESA) (BA) and Forest Service sensitive species (BE) (FSM 2670.31-2670.32).

Section 7 of the ESA requires federal agencies to use their authorities to carry out programs to conserve endangered and threatened species, and to insure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of listed or proposed species, or result in the destruction or adverse modification of their designated critical habitats. A BA must be prepared for federal actions that are “major construction activities” (defined under the National Environmental Policy Act (NEPA) as a project significantly affecting the quality of the human environment) to evaluate the potential effects of the proposal on listed or proposed species. The contents of the BA are at the discretion of the federal agency, and will depend on the nature of the federal action (50 CFR 402.12(f)).

The Forest Service has established direction in Forest Service Manual 2670 to guide habitat management for Threatened, Endangered, Proposed, and Sensitive species (TEPS). Preparation of a BE as part of the NEPA process ensures that TEPS species receive full consideration in the decision-making process.<sup>1</sup>

## II. DESCRIPTION OF THE PROPOSAL

### PURPOSE AND NEED

The Record of Decision (ROD) for the Land and Resource Management Plan (LRMP) was signed on July 31, 2002. The ROD and LRMP provide general guidance and direction for conserving and managing prairie dogs on National Forest System (NFS) lands. This guidance and direction addresses use of rodenticides, landownership adjustment, vegetation management, livestock grazing, prairie dog shooting/hunting, translocation, and other management options to either expand or limit growth of prairie dog populations and colonies. The LRMP (p. 1–21) directs the Forest Service to consult statewide prairie dog management plans for additional guidance on the appropriate response to complaints of unwanted prairie dog colonization on adjacent agricultural lands. The ROD states that the Forest Service intends to implement statewide prairie dog management plans to the extent allowable by law and policy in providing direction for reducing unwanted prairie dog colonization on adjacent lands through a LRMP amendment, if necessary. Since the signing of the ROD, several events have occurred that make this proposal timely:

<sup>1</sup> Standards for preparation and the content of Biological Evaluations are established in the Forest Service Manual (FSM 2672.42). Additional guidance is provided in Region 2 Manual Supplement 2600-2003-1.

1. In the August 12, 2004, Federal Register, the U.S. Fish and Wildlife Service (FWS) decided that a proposed rule to list the prairie dog is not warranted, and the prairie dog is no longer a candidate species for listing under the ESA.
2. The South Dakota prairie dog management plan is in the final stages of completion and is awaiting approval. It is unlikely that the State of Nebraska will issue a statewide prairie dog management plan in the foreseeable future.
3. Extended drought conditions have increased prairie dog colony expansion and unwanted colonization of adjacent lands.
4. In response to the treatment of prairie dog colonies with zinc phosphide by USDA Animal and Plant Health Inspection Service (APHIS) in the fall of 2004, several conservation organizations expressed concern over the effects of this action on the Conata Basin black-footed ferret population and other associated wildlife.

## AREA AFFECTED

The areas affected by the black-tailed prairie dog management plan are the Buffalo Gap and Fort Pierre National Grasslands in South Dakota, and Samuel R. McKelvie and Nebraska National Forests and Oglala National Grassland in Nebraska.

**Buffalo Gap National Grassland.** The Buffalo Gap National Grassland is located in southwestern South Dakota and includes more than 589,000 acres of land that borders and is intermingled with private, state, Indian reservation, and national park lands. The eastern half of this unit extends from near Kadoka, South Dakota, on the east, to the Cheyenne River on the west, north to U.S. Highway 14, and south to the Pine Ridge Indian Reservation. The Wall Ranger District (WRD), Wall, South Dakota, administers the eastern half. The WRD is divided into 3 geographic areas (Wall North, Wall Southeast, and Wall Southwest). The Wall Southeast Geographic area contains a 5,130-acre block that is identified in the LRMP as 3.63 Black-footed Ferret Reintroduction Habitat. The Wall Southwest Geographic area contains Conata Basin which is a 73,590 acre block that is identified in the LRMP as 3.63 Black-footed Ferret Reintroduction Habitat. Ferrets have been successfully reintroduced into this area. The western half of the Buffalo Gap National Grassland extends from the Cheyenne River on the east to the Wyoming and Nebraska borders on the west and south, respectively. The Fall River Ranger (FRRD) District, Hot Springs, South Dakota, administers this unit. The FRRD is divided into 3 geographic areas (Fall River West, Fall River Southeast, and Fall River Northeast). The Fall River Southeast Geographic area contains a 25,300-acre block that is identified in the LRMP as 3.63 Black-footed Ferret Reintroduction Habitat.

**Fort Pierre National Grassland.** The Fort Pierre National Grassland (116,000 acres) lies south of Pierre, South Dakota, north of Interstate 90, and west of the Lower Brule Indian Reservation. The Fort Pierre National Grassland consists of mixed-grass vegetation on a rolling hill landscape just west of the Missouri River.

**Nebraska National Forest (Pine Ridge Ranger District).** These lands (50,500 acres) are in Dawes and Sioux Counties of northwestern Nebraska and include the Soldier Creek Wilderness



(7,800 acres). Elevations rise to 5,000 feet along ponderosa pine covered ridges. The unit is administered by the Pine Ridge Ranger District, Chadron, Nebraska.

**Nebraska National Forest (Bessey Ranger District).** About 90,200 acres of sandhills prairie makes up the Nebraska National Forest, Bessey Ranger District, located in central Nebraska in Thomas and Blaine counties. Topography consists of rugged sandhills.

**Samuel R. McKelvie National Forest.** The 116,100-acre Samuel R. McKelvie National Forest, administered by the Bessey Ranger District, lies in the Sandhills of north central Nebraska in Cherry County. Topography consists of rugged sandhills interspersed with large expansive valleys.

**Oglala National Grassland.** The 94,200-acre Oglala National Grassland lies in Dawes and Sioux counties of northwestern Nebraska and contains mostly mixed-grass vegetation. Topography consists of rolling hills and badlands. The grassland is administered by the Pine Ridge Ranger District, Chadron, Nebraska.

## EXISTING CONDITION

Approximate prairie dog colony acreage for each unit in the project area is displayed in Table 1. A map of potential prairie dog habitat is maintained in the project record.

**Table 1. Acres of Active Prairie Dog Colonies during 2004 on National Grassland (NG) and National Forest (NF) units of the Nebraska National Forest.**

Location	Acres of Active Colonies*	Percent of Area in Colonies	Map #	Approximate Number of Colonies	Average Colony Acreage (range)
Buffalo Gap N.G.	26,030	4.4	E-2 to E-6	309	85 (<1 to 4,060)
Fort Pierre N.G.	1,340	1.2	E-1	53	25 (<1 to 313)
Oglala N.G.	2,220	2.4	E-7	26	85 (<1 to 1,100)
Neb. N. F. Bessey R. D.	90	0.1	E-8	9	10 (1 to 25)
Samuel R. McKelvie N. F.	0	0	0	0	0
Neb. N.F. Pine Ridge R. D.	0	0	0	0	0
Combined	29,680			397	75 (<1 to 4,060)

\*These acres do not include prairie dog colonies treated with rodenticide in the fall of 2004.

## LIST OF EFFECTS CONSIDERED IN THIS ANALYSIS/EVALUATION

- Effects of rodenticide use (total acres and general location) in and outside black-footed ferret (ferret) habitat on ferrets, prairie dogs, and other species.
- Effects of modifying the current prairie dog shooting closure in Conata Basin on ferrets, prairie dogs and other wildlife species.
- Effects of delaying prairie dog shooting restrictions in Smithwick ferret habitat on ferrets, prairie dogs, and other wildlife species.

This analysis assumes all prairie dog colonies within the boundary management zone will be treated with rodenticide within the life of this project. However, compliance with all management direction, as well as specific circumstances within the boundary management zone, may result in less than the maximum acreage actually being treated.

There are no prairie dog colonies on the Samuel R. McKelvie National Forest and NNF, Pine Ridge Ranger District, and these areas are not included in any of the analyses in the Final Environmental Impact Statement (FEIS). There are several small colonies on the NNF, Bessey Ranger District, but the long-term persistence of this population is uncertain because of marginal habitat capability. Because of this uncertainty, no prairie dog rodenticide use or other management tools will be considered or authorized for this area. Management of this prairie dog population will be limited to annual monitoring to determine population status and trend.

### **PREFERRED ALTERNATIVE**

Alternative 3: Prairie dog conservation concurrent with population regulation through non-lethal methods and expanded rodenticide use along NFS boundaries (0.25 to 0.5 mile boundary management zones) is the preferred alternative.

Three alternatives were analyzed in detail in the Draft Environmental Impact Statement (DEIS). All three alternatives were analyzed in the DEIS (Appendix E) for effects on the threatened, endangered and Forest Service sensitive species that occur in the area.

Only the preferred alternative is analyzed in this appendix. For a more detailed description of the preferred alternative refer to Chapter 2 of the FEIS. Table 2 includes information on prairie dog colonies and potential rodenticide use under the preferred alternative. This information was used for effects analysis. Refer to Appendix E in the DEIS for effects analyses for Alternatives 1 and 2.

However, based on new information concerning possible lead poisoning of raptors and other scavengers resulting from prairie dog shooting, the original biological determinations for the Northern harrier in Appendix E of the DEIS have now been changed from “no impact” to “may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing”.

Table 2. Summary of the Preferred Alternative Effects on Black-Tailed Prairie Dog Colonies and Rodenticide Use

Alternative And National Grassland/Forest	Current Colony Acreage Subject to Possible Rodenticide Use <sup>1</sup>	Predicted Annual Rodenticide Use <sup>2</sup> 2005–2012 (acres)	Current Active Colony Acreage <sup>3</sup> (Rodenticide Unlikely)	Current Number of Active Colonies / Average Colony Size <sup>3</sup> (Rodenticide Unlikely)	Predicted Colony Acreage in 2012 <sup>4</sup>
Buffalo Gap N.G.	10,450	6,800 to 8,700	22,360	190 colonies / 118 acres	27,000 to 38,000
Conata Basin Ferret Habitat	4,260	3,300 to 6,200	19,290	101 colonies / 191 acres	23,000 to 32,000
Smithwick Ferret Habitat	210	160 to 290	780	14 colonies / 56 acres	1,300 to 1,800
Fort Pierre N.G.	470	120 to 210	870	36 colonies / 24 acres	1,100 to 1,400
Colony Complex	300	90 to 140	550	10 colonies / 52 acres	700 to 900
Ogala N.G. and Colony Complex	1,050	410 to 510	1,170	7 colonies / 167 acres	1,400 to 1,800
Nebraska N.F. (Bessey R.D.)	0	0	90	9 colonies / 10 acres	<100
Combined	11,970	7,330 to 9,420	24,490	242 colonies / 101 acres	30,000 to 41,000

<sup>1</sup> Based on GPS surveys in 2004 and includes colonies that may be a risk to health and safety or facilities or located in boundary management zones; includes 6,780 acres of colonies treated with rodenticide in 2004

<sup>2</sup> Includes colonies treated with rodenticide in 2004 and both initial and follow-up (maintenance) rodenticide applications

<sup>3</sup> Based on GPS surveys in 2004; includes colonies that are not in boundary management zones or not currently a risk to health and safety or infrastructure

<sup>4</sup> Projections assume that some colonies within boundary management zones would not be treated with rodenticide



## BIOLOGICAL ASSESSMENT AND EVALUATION PROCESS

**Supporting Information and Pre-field Review.** Two lists of plant and animal species were developed. The first list includes those species currently protected under the ESA (Table 5). The second list includes species that are considered sensitive by Region 2 of the Forest Service (Table 8).

Information on species at risk and their habitats was obtained from a large volume of published and unpublished references including regional programmatic BEs.

Biological Evaluation for the Black-footed Ferret (USDA Forest Service 1995e)  
 Biological Evaluation for Whooping Crane (USDA Forest Service 1995q)  
 Biological Evaluation for the American Burying Beetle (USDA Forest Service 1995e)  
 Biological Assessment for the Bald Eagle (USDA Forest Service 1995b, 1995c)  
 Biological Evaluation for the Swift Fox (USDA Forest Service 1995o)  
 Biological Evaluation for the American Bittern (USDA Forest Service 1995a)  
 Biological Assessment for the Long-billed Curlew (USDA Forest Service 1995h)  
 Biological Evaluation for the Ferruginous Hawk (USDA Forest Service 1995g)  
 Biological Evaluation for the Burrowing Owl (USDA Forest Service 1995f)  
 Biological Assessment for the Mountain Plover (USDA Forest Service 1995i)  
 Biological Evaluation for the Trumpeter Swan (USDA Forest Service 1995p)  
 Biological Evaluation for the Black Tern (USDA Forest Service 1995d)  
 Biological Evaluation for the Northern Leopard Frog (USDA Forest Service 1995j)  
 Biological Assessment for the Regal Fritillary Butterfly (USDA Forest Service 1995k)  
 Biological Evaluation for Sensitive Species Not Impacted by Grazing (USDA Forest Service 1995l)  
 Biological Evaluation for Sensitive Species in Riparian Areas (USDA Forest Service 1995m)

The Regional Leadership Team initiated the Species Conservation Project (SCP) in April, 2000. The purpose of the project is to compile scientific information, and develop a comprehensive approach to conservation of fish, wildlife and plant species. Chartered as a 5-year project, it was designed to:

- Develop consistent scientific information and tools to improve our efforts to provide for species viability and ecosystem sustainability.
- Change and improve planning and implementation by integrating ecological objectives and outcomes early in the design phase, rather than mitigating negative impacts.
- Improve organizational effectiveness by streamlining analyses and building internal and external credibility.

The following SCP assessments were consulted during the preparation of this document:

- Fringed Myotis (*Myotis thysanodes*): a technical conservation assessment (Keinath 2004).
- Swift Fox (*Vulpes velox*): a technical conservation assessment (Stephens & Anderson 2005).
- Northern Goshawk (*Accipiter gentiles atricapillus*): a technical Conservation assessment (Kennedy 2003).
- Chestnut-collared Longspur (*Calcarius ornatus*): a technical conservation (Sedgwick 2004a).
- McCown's Longspur (*Calcarius mccownii*): a technical conservation assessment. (Sedgwick 2004b).
- Short-eared Owl (*Asio flammeus*): a technical conservation assessment (Wiggins 2004).
- The Burrowing Owl (*Athene cunicularia*): a technical conservation assessment (McDonald et al. 2004).
- Mountain Plover (*Charadrius montanus*): a technical conservation assessment (Dinsmore 2003).
- Brewer's Sparrow (*Spizella breweri*): a technical conservation assessment (Holmes and Johnson 2005).
- Grasshopper Sparrow (*Ammodramus savannarum*): a technical conservation assessment (Slater 2004).
- Black Tern (*Chlidonias niger surinamensis*): a technical conservation assessment (Naugle 2004).
- Lewis's Woodpecker (*Melanerpes lewis*): a technical conservation assessment (Abele et al. 2004, June 29).
- Sturgeon Chub (*Macrhybopsis gelida*): a technical conservation assessment (Rahel & Thel. 2004).

**Field Reconnaissance.** Surveys and inventories for listed species like the ferret and bald eagle have been conducted for many years by various individuals, organizations, and government agencies including the Forest Service, U.S. Fish and Wildlife Service, universities, and state wildlife and natural resource agencies. Incidental sightings of species like the bald eagle, whooping crane, and peregrine falcon have also been recorded.

Additional surveys, research, and inventories have been conducted by the Forest Service and/or others with regards to other species such as swift fox, mountain plover, greater prairie chicken, sage grouse, western burrowing owl, and regal fritillary butterfly. Surveys of prairie dog colonies have also been conducted by the Forest Service. Information gathered from such field work was used to help describe species distributions, habitat use, and habitat suitability. The information was also critical in helping to determine potential effects from implementation of each of the preferred alternative. Maps display the known locations of species on the units. They do not imply species distribution across the areas.

**Analysis of Effects.** The potential effects of the preferred alternative on each species are disclosed in this document. These evaluations include direct, indirect, and cumulative effects on each species. Cumulative effects are described at the scale of the NNF unless otherwise specified. The effects, expressed as biological determinations, are based on the assumption that

the standards and guidelines in the LRMP are fully implemented and strategically located to benefit species at risk.

To reduce the number of analyses, any species listed in the tables that meet one or more of following criteria (screens) was eliminated from further analyses:

**Screen 1 - (Importance of Area).** Presence of the species or suitable habitat is doubtful or has not been documented.

**Screen 2 - (Threats).** The species or potential habitat for the species may occur, but it's highly unlikely that land uses and allocations authorized by the Forest Service would affect the species and/or its habitat either on NFS lands or downstream.

### Biological Determinations

This BA and BE process culminates with a determination of the likely effects of the preferred alternative on each species. The types of determinations that can be made for those species protected under ESA are determined by the U.S. Fish and Wildlife Service (1998) (Table 3).

No critical habitat has been proposed or designated on any of the lands administered by the NNF.

**Table 3. Biological determinations for federally listed and proposed species**

<b>Threatened and Endangered Species:</b>	
<b>Determination</b>	<b>Abbreviation</b>
• No effect	NE
• May affect, not likely to adversely affect	MA-NLAA
• May affect, likely to adversely affect	MA-LAA
<b>Species proposed for federal listing:</b>	
<b>Determination</b>	<b>Abbreviation</b>
• Not likely to jeopardize continued existence	NLJ
• Likely to jeopardize continued existence	LJ

Direction in Forest Service Manual 2670 establishes the types of determinations for Forest Service-designated sensitive species. The determinations (and abbreviations) made for these species are presented in Table 4.



**Table 4. Biological determinations for Forest Service sensitive species**

<b>Region 2 Sensitive Species:</b>	
<b>Determination</b>	<b>Abbreviation</b>
• No impact	NI
• Beneficial impact	BI
• May adversely impact individuals but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide	MAII
• Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range-wide	LRLV

A biological determination is being made for each species for each national grassland and forest where the species or suitable habitat is located.

## GENERAL EFFECTS

### Direct effects

Direct effects are caused by the action and occur at the same time and place (50 CFR 1508.8).

Prairie dog rodenticide (2 percent zinc phosphide bait) when properly applied is highly effective in reducing prairie dog populations within treated colonies. Poisoning of non-target species can occur but is minimized when the rodenticide is applied according to label specifications and during favorable weather. In studies conducted in Conata Basin, measurable reductions in non-target populations were documented for deer mice (*Peromyscus maniculatus*), ants (Hymenoptera), and darkling beetles (Coleoptera), but there was no measurable reduction in avian and other invertebrate populations (Apa et al. 1991, Deisch et al. 1990, Uresk et al. 1985a, Uresk et al. 1985b, and Uresk et al. 1986).

Zinc phosphide is a heavy, finely ground gray black powder that is practically insoluble in water. When exposed to moisture it decomposes slowly and releases phosphine gas. Phosphine may be generated rapidly if the material comes in contact with dilute acids. When zinc phosphide comes in contact with dilute acids in the stomach, phosphine is released and it is this substance that causes death. Animals that ingest lethal amounts of bait usually die from asphyxiation within 3-5 hours (Timm 1983).

Zinc phosphide is a strong emetic (cause vomiting) which can factor into how much of the chemical it takes to kill the animal and whether or not an animal dies after ingesting the chemical (Schitoskey 1975).

The chemical zinc phosphide is used to treat grain bait (oats) for consumption by prairie dogs. Untreated grain is typically applied to the application area a few days prior to zinc phosphide application to promote consumption of the grain. Prairie dogs in most cases will not eat the grain bait until early in the fall when their natural forage matures and dries (South Dakota Department of Agriculture et al. 1994). When proper procedures are followed, efficacy of zinc phosphide bait is typically 90 percent or higher (South Dakota Department of Agriculture et al. 1994).

Results of laboratory studies generally indicate that zinc phosphide poses little secondary risk to non-target wildlife. Zinc phosphide breaks down rapidly in the digestive tract of affected animals, so predators and scavengers are generally not exposed to the compound. Species that were fed zinc phosphide-poisoned prey during lab studies and showed no negative physiological symptoms included Siberian ferrets, mongooses, coyotes, kit foxes, mink, black vultures, bald eagles, golden eagle, and great-horned owls (USDA Animal Plant and Health Inspection Service 1994).

Zinc phosphide is not stored in the muscle or other tissue of poisoned animals. There is no true secondary poisoning. However, it does remain toxic for as long as several days in the gut of dead rodents. Other animals can be poisoned if they eat enough of the gut content of rodents recently poisoned zinc phosphide (Timm 1983). This threat is lessened because most prairie dogs poisoned with zinc phosphide treated grains die inside their burrows (Tietjen 1976).

There is only a small amount of deterioration of zinc phosphide baits due to the evolution of phosphide gas; therefore, dry baits must be considered toxic indefinitely. Lecithin-mineral oil, added to zinc phosphide to adhere to grain bait, offers protection against moisture, and therefore increases its stability. Under field conditions, zinc phosphide baits may remain toxic several months until eroded by weather or decomposition of the carrier or the grain is removed by insects (Timm 1983).

Translocation of phosphine gas has been demonstrated, but it is rapidly converted to harmless phosphates (Timm 1983).

The LRMP prohibits the use of rodenticides (above-ground baits) for reducing prairie dog populations outside the period October 1 to December 31 to reduce risks to migratory birds. To reduce risk to other wildlife, the LRMP does not allow burrow fumigants in prairie dog colonies.

Prairie dog shooting can affect prairie dog populations. Shooting of prairie dogs may significantly reduce prairie dog densities (Vosburg and Irby 1998) and indefinitely maintain reduced densities in smaller isolated colonies (Knowles 1987). Shooting prairie dogs in colonies that have been previously poisoned could likely prevent or slow population recovery in those colonies. Also, gunfire and other related activity and disturbances may disrupt prairie dog foraging and other activities for extended periods of time. Prairie dogs exhibit different behavioral patterns in colonies where shooting occurs compared to colonies where there is no shooting. Prairie dogs in hunted colonies were more wary and responded more quickly to humans on foot and in vehicles, and may have spent less time foraging than individuals in non-hunted colonies (Vosburgh and Irby 1998). In a study conducted in eastern Wyoming, recreational shooting increased the alertness and decreased above ground activity of black-tailed prairie dogs, which in turn reduced the time spent foraging and resting. This resulted in a decrease in body condition of surviving adult prairie dogs, reduced pregnancy rate and reproductive output (Pauli 2005).

Another direct effect is the inadvertent or intentional killing of non-target animals while shooting prairie dogs. The extent of this problem is likely tied to two factors: the first is how much a non-target animal looks like a prairie dog; the second is the experience and scruples of the person doing the shooting. It would be possible to mistake a burrowing owl for a prairie dog if one is not careful, but impossible to mistake a whooping crane for a prairie dog. It is always possible for an unethical prairie dog shooter to kill anything that is within shooting range.



Another effect is secondary lead poisoning of non-target species caused by lead fragments left in the prairie dog carcasses after they have been shot by prairie dog shooters. In a study conducted in eastern Wyoming two types of bullets were tested to determine how much lead was present in the prairie dog carcasses after they had been shot: a soft point and a full metal jacket (both from .223 caliber rifles). Eighty-seven per cent of prairie dogs shot with soft point bullets contained bullet fragments compared to 7 percent of those shot with full metal jackets. Furthermore, the amount of lead found in prairie dog carcasses differed between the two bullet types; full metal jacket only averaged 19.8 mg of lead, while soft point averaged 225.2 mg of lead (Pauli personal comm). Therefore, it would be likely that a scavenger that eats a prairie dog carcass could suffer from lead poisoning.

### **Indirect effects**

Indirect effects are caused by the action and are later in time or farther removed in distance, but still reasonably foreseeable (50 CFR 1508.8).

An indirect effect is the loss of habitat as a result of rodenticide use and reductions in prairie dog populations. Prairie dogs tend to cut all tall vegetation down in the vicinity of the colony, creating low structure grassland. Permanently removing prairie dog populations from an area could result in shift in the vegetative community from a buffalograss/ blue grama sod to a western wheatgrass/green needle community (this is dependent on the soil type for the particular site where the prairie dog colony is located). This in turn could alter habitat suitability for a variety of wildlife species in the area.

Prairie dog burrows create a unique habitat for other creatures, including burrowing owls, badgers, rabbits, black-footed ferrets, snakes, salamanders, and insects. Without live prairie dogs to maintain the burrow system, the burrows will deteriorate. Within a few years the burrow system breaks down, and its value to other wildlife is reduced.

A short-term indirect effect is reduction of prey base as a result of rodenticide use in prairie dog colonies. In the long term, vegetation on inactive prairie dog colonies can shift to a mixed grass prairie, with reduced densities of both small mammals and birds (Agnew 1983).

### **Cumulative effects**

From a NEPA perspective, cumulative effects are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of agency (Federal or non-Federal) or person that undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (50 CFR 1508.7).

From an ESA perspective, cumulative effects are defined as those effects of future state or private activities, not involving Federal activities that are reasonably certain to occur within the action area. (Future federal actions will be subject to their own consultation.)

An obvious cumulative effect to this action is the additional reduction of prairie dog populations resulting from rodenticide use by other entities. Over 6,700 acres of colonies have already been treated with rodenticide on Buffalo Gap National Grassland. Nearly 24,250 acres of prairie dog colonies have been reported as treated with rodenticides on nearby private land by the State of



South Dakota in 2004 (South Dakota 2005). It is likely that there will be additional and substantial requests for more rodenticide treatment on Tribal and private lands.

Plague is currently not known to occur on any prairie dog colony within lands administered by the NNF. However, plague was confirmed in a prairie dog colony in western Custer County, South Dakota in September, 2004 near the border of Wyoming and South Dakota. Prairie dogs are highly susceptible to plague, which is considered to be a serious threat to the persistence of local prairie dog populations. The potential for plague to occur in prairie dog populations on the national grasslands and forests in the project is unknown, but it is acknowledged that plague can have dramatic impacts on prairie dog populations.

Other activities that can affect prairie dog populations in the project area include livestock grazing, construction, oil and gas exploration, and farming.

### III. THREATENED, ENDANGERED, AND PROPOSED SPECIES CONSIDERED IN THE ANALYSIS

Threatened, endangered, and proposed species that may be present in the action area are provided in Table 5.

**Table 5. Federally Listed Species Located on NFS Lands in the Project Area**

**STATUS: ENDANGERED**

	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. Pine Ridge R. D.	Nebraska N. F. Bessey R. D.	Samuel R. McKelvie N. F.
<b>MAMMALS</b>						
Black-footed ferret	K					
<b>BIRDS</b>						
Whooping crane	K	K			K	
<b>INVERTEBRATES</b>						
American burying beetle					K	
<b>PLANTS</b>						
<i>Penstemon haydenii</i>					K	K

**STATUS: THREATENED**

<b>BIRDS</b>						
Bald eagle	K	K	K	K	K	K

K = Known occurrence in vicinity; date of last observation suggests that species still occurs in area,

## SPECIES ELIMINATED FROM FURTHER ANALYSIS

All species eliminated from further analysis have been determined to have a “no effect” biological determination.

### Screen 1 (Importance of Area)

None

### Screen 2 - (Threats)

#### BLOWOUT PENSTEMON

*Penstemon haydenii*

Rationale: Blowout penstemon occurs in sand blowouts of the Bessey Ranger District and Samuel R. McKelvie National Forest. It is highly unlikely that prairie dog colonies could persist in the unstable soils of a sandhill blowout.

#### AMERICAN BURYING BEETLE

*Nicrophorus americanus*

Rationale: American burying beetle only occurs on the Bessey Ranger District and Samuel R. McKelvie National Forest. No change in management is proposed for this area in this decision. Also, rodenticide use is not authorized.

## IV. CONSULTATION HISTORY

On December 14, 2004, a list of threatened, endangered, and proposed species that may be present in the action area was submitted to the U.S. Fish and Wildlife Service (FWS) (Table 5). Concurrence with the list of species was received on December 23, 2004. However, FWS recommended that the whooping crane (*Grus americana*) be added to the list.

Consultation with FWS for the revision of the LRMP is summarized in Appendix H of the Final Environmental Impact Statement (FEIS) and all consultation records are maintained in the project record for the LRMP in the Forest Supervisor's office in Chadron, Nebraska.

## V. ANALYSIS OF EFFECTS – FEDERALLY LISTED AND PROPOSED SPECIES

### BLACK-FOOTED FERRET

*Mustela nigripes*

**Distribution and Status.** Historically, the black-footed ferret (ferret) distribution in North America corresponded primarily with that of prairie dogs (Higgins et al. 2000). The ferret is considered to be one of the rarest mammals in North America and the world, and was listed as endangered in 1967. Endangerment of the ferret came about largely through, 1) reductions and fragmentation of prairie dog colonies through poisoning, cultivation, urbanization and plague, 2) unintentional poisoning of ferrets through prairie dog poisoning efforts, and 3) disease, specifically canine distemper and plague (USDA Forest Service 2000).

One of the first opportunities to study black-footed ferret biology occurred from 1964 through 1974 during research on a remnant ferret population in South Dakota. Black-footed ferrets were "rediscovered" in 1981 in prairie dog colonies near Meeteetse, Wyoming. In 1985, sylvatic plague, a lethal disease to prairie dogs, was confirmed in the prairie dogs at Meeteetse. The fear of plague was then overshadowed by the discovery of canine distemper in the Meeteetse habitat. This disease is lethal to ferrets.

A plan was formulated to place animals from Meeteetse into captivity to protect them from distemper and to start a captive breeding program. In 1986, all remaining ferrets were removed from the wild, resulting in a captive population of 18 individuals. Captive breeding of ferrets eventually became very successful. Progress in captive breeding has produced over 5,000 ferrets. A goal of the breeding program is to retain as much genetic diversity as possible, but the only practical way to increase diversity is to find more wild ferrets. In spite of intensive searches of the remaining good ferret habitat and investigations of sighting reports, no wild ferrets have since been found.

The captive breeding program now is producing sufficient surplus ferrets for reintroduction into the wild. Initiated in 1991, ferrets have been reintroduced in eight areas across six western states including one site in Mexico (CBSG 2004). Ferret recovery is still not assured given severe habitat limitations and disease (CBSG 2004). Challenges facing the black-footed ferret reintroduction include low survivorship of released ferrets due to high dispersal and losses to other predators; unknown influence of low genetic diversity; canine distemper hazard; direct effects of plague on prairie dog populations and possible indirect effects on ferrets; and minimal suitable habitat for reintroduction.

**Habitat.** The ferret is known to inhabit prairie dog colonies almost exclusively. Colonies provide the ferret with its primary food source and shelter (USDA Forest Service 2000). The movement of ferrets between prairie dog colonies is characterized as dispersal (USDA Forest Service 2001a).



## ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA—Endangered	G1, N1; Nebraska – SH; South Dakota – S1

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

In an intra-Service consultation on the reintroduction of ferrets into the Conata Basin/Badlands Area dated April 7, 1994, a low level of incidental take was anticipated from private land uses and authorized agency actions. Based on the best available information at that time, the FWS set an anticipated annual incidental take level from human-caused mortality of 12 percent for the entire experimental population. If the incidental take level is exceeded in any year, Section 7 consultation would immediately be reinitiated.

The ferret within the designated experimental population area on the Buffalo Gap National Grassland is considered a proposed species, rather than endangered. A Final Rule (U.S. Fish and Wildlife Service 1994), published in the Federal Register on August 18, 1994, designated an experimental population area that includes portions of the Buffalo Gap National Grassland and surrounding areas. Reintroduced ferrets are considered part of a non-essential experimental population in accordance with section 10(j) of the ESA. Such designation requires that future section 7 consultations shall consider the ferret population within the experimental population area on the Buffalo Gap National Grassland as a species proposed for listing.

**Recovery and Conservation Planning.** As described in the LRMP FEIS (USDA Forest Service 2001b), the FWS 1988 ferret recovery plan objective is to ensure the immediate survival of the species by accomplishing the following:

- 1) Increasing the captive population of ferrets to a census size of 200 breeding adults by 1991;
- 2) Establishing a pre-breeding census population of 1,500 free-ranging ferret breeding adults in 10 or more populations, with no fewer than 30 breeding adults in any population by the year 2010; and
- 3) Encourage the widest possible distribution of reintroduced ferret populations.

**Existing Conditions.** Among the land units administered by the NNF, the only known population of ferrets occurs in the Conata Basin, Buffalo Gap National Grassland (Maps E-9a, E-9b and E-10). There are historic records of ferrets on the Buffalo Gap National Grassland outside of the Conata Basin and the Fort Pierre National Grassland but, after many years of surveys (U.S. Fish and Wildlife Service 1993), no additional black-footed ferrets or ferret populations have been found outside the Conata Basin/Badlands reintroduction habitat.

Reintroduction habitat for the ferret is designated as MA 3.63 in the current LRMP (USDA Forest Service 2001c). The MA 3.63 designation only exists on the Buffalo Gap National Grassland and collectively encompasses a total of 104,020 acres. There are approximately 20,310 acres of prairie dogs within the Conata Basin ferret reintroduction area and approximately 990 acres of prairie dogs within the Smithwick ferret reintroduction area. To date, ferrets have not been released in the Smithwick. habitat.

The Conata Basin site is the most successful ferret reintroduction site in the nation (USDA Forest Service 2005). Currently (2004), the Conata Basin ferret reintroduction site has a minimum known population of 201 ferrets of which 104 are adults (Livieri and Perry 2005). From 1996 to 2004, there have been 389 litters totaling 773 ferret kits born in the wild on the Conata Basin site. The success of the Conata Basin site has been such that wild born ferret kits have been available for translocation to other reintroduction sites. To date, a total of 38 kits have been translocated to other ferret reintroduction sites. The Conata Basin site continues to yield a wealth of new information about black-footed ferrets and their ecology.

In 2000, the ferret population appeared to approach carrying capacity (equilibrium) and has oscillated since that year (Livieri and Perry 2005). To maintain a self-sustaining long-term ferret population in the Conata Basin, modeling of data from 2000 to 2002 suggests that a ferret family rating of approximately 200 would be needed (Livieri and Perry 2005). The figures derived from the model are considered as approximations allowing for some degree of flexibility. Livieri and Perry (2005) state that the model used is for alternative comparisons such that ferret family ratings should be interpreted as relative rather than absolute.

Prairie dog densities were based on the Biggins et al. (1993) model to calculate ferret family ratings, using 200 for the ferret family rating. For ferrets, the threshold would be a ferret family rating of 200. Table 6 outlines the necessary size and densities needed to support this ferret family rating.

**Table 6. Prairie dog colony area and population densities for maintaining a ferret family rating of 200.**

Acres	Hectares	Density/Ac/Ha	Total PD	Ferret Rating
25,128	10,173	6.1/15	152,600	200
18,846	7,630	8.1/20	152,600	200
15,077	6,104	10.1/25	152,600	200
12,564	5,087	12.1/30	152,600	200
10,769	4,360	14.2/35	152,600	200
9,423	3,815	16.2/40	152,600	200

**Direct, Indirect and Cumulative Effects.** Primary and secondary poisoning of ferrets by consumption of rodenticide bait or poisoned prairie dogs are not considered significant threats to ferrets (USDA Forest Service 2001b). Prey availability for ferrets would be reduced following rodenticide application in prairie dog colonies and repeated rodenticide applications would eventually reduce burrow availability for shelter (USDA Forest Service 2001b). The ferret would not likely suffer any direct effects from the use of zinc phosphide rodenticide used to reduce prairie dog populations, but would be indirectly affected by reduced prey availability through the loss of prairie dogs and suitable habitat.

The possibility of accidental ferret mortality exists with prairie dog shooting (Joslin and Youmans 1999). Prairie dog shooting could directly cause the accidental death of a ferret, although the potential for ferrets being shot is lessened by their nocturnal habit. However, ferrets have been known to be aboveground during daylight hours, particularly early morning and late evening periods when prairie dog shooting may be occurring. Prairie dog shooting can leave



lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Cumulatively, prairie dog habitat subject to rodenticide use and shooting would likely provide little if any ferret habitat. Livestock grazing can also indirectly influence prairie dog colony acreages (USDA Forest Service 2001b). Livestock grazing at high levels can promote low vegetative structure and encourage prairie dog acreage expansion, whereas a low level or elimination of livestock grazing can help promote higher vegetative structure which can contain, reduce or eliminate prairie dog acreage. Livestock grazing at low levels or removal of livestock grazing during drought can help ensure forage to help maintain prairie dog densities in ferret habitat. Precipitation events in terms of timing and amount can also be a dominant influence on vegetation structure, promoting or inhibiting plant growth. The cumulative effect of these factors can interact in variable ways to either promote or inhibit prairie dog colonies used as ferret habitat.

Additional cumulative effects may arise from land management activities by adjacent landowners. As discussed in Chapter 3 of this FEIS and USDA Forest Service (2001b), prairie dog rodenticide use will likely occur at some level on adjacent private and tribal lands resulting in further losses of potential ferret habitat. In addition, ferret habitat could be further reduced and fragmented in the event of plague epizootics in prairie dog colonies in the Conata Basin area.

Management of prairie dog populations using rodenticide, in combination with other non-lethal tools, may occur in the future in the interior areas of the national grasslands in the project area. As indicated in Section 3.1 and Table 3-2, interior colony acreages are expected to continue increasing under this proposed action. This continued growth is expected to result in additional concerns and issues about soil conservation and rangeland health, including effects on black-footed ferret recovery in Conata Basin.



## **DETERMINATION OF EFFECT AND RATIONALE FOR THE BLACK-FOOTED FERRET**

**Buffalo Gap N.G** (within the Conata Basin/ Badlands experimental population area): The biological determination for the ferret under the preferred alternative inside the Conata Basin/Badlands experimental population area on the Buffalo Gap National Grassland is: *"not likely to jeopardize the continued existence of the species"*.

**Rationale:** Because the ferret population in Conata Basin is designated a nonessential experimental population, it is not considered essential to the conservation or continued existence of the species. Also, as described under Alternative 3, rodenticide use in the Conata Basin black-footed ferret reintroduction area could only extend to a half mile if minimum black-footed ferret population thresholds continue to be met. These thresholds, based on current information,



indicate that between 12,500 and 19,000 acres of active prairie dog colonies are needed, depending on prairie dog densities, to support a long-term ferret population (Livieri and Perry 2005). If the minimum thresholds are not being met, rodenticide use would not occur or would be limited to less than a half mile from adjoining lands. Under this alternative, it is predicted there will be between 23,000 and 32,000 acres of active prairie dog colonies in Conata Basin by the year 2012, depending on annual colony expansion rates.

Under the preferred alternative, the total prairie dog colony acreage in Conata Basin could be reduced to approximately 19,290 acres in the short-term after rodenticide application. Under this alternative, approximately 15,000 acres at moderate prairie dog density levels would be needed to maintain a minimum ferret family rating of 200. At low prairie dog densities, the ferret family rating threshold of 200 would not be met if low densities occurred across the entire Conata Basin ferret area. Under this alternative, rodenticide use would be modified to maintain a minimum 200 ferret family rating. The preferred alternative maintains ferret family rating of 159 at low prairie dog densities, 272 at moderate prairie dog densities and 386 at high densities. The alternative meets and exceeds the minimum threshold at moderate and high prairie dog densities.

A small area within the existing MA 3.63 area (black-footed ferret reintroduction habitat) in Conata Basin has not demonstrated any contribution to the ferret recovery program and will likely not contribute in the foreseeable future (Livieri and Perry 2005). This area is relatively isolated from the primary Conata Basin habitat and does not provide sufficient habitat to support a ferret population.

Limited regulated shooting of prairie dogs may be allowed within the half mile zone, excluding the interior portions of the ferret reintroduction habitat area. It is possible that any ferrets in an area where prairie dog shooting is occurring could be at risk of being shot. Prairie dog shooting can also result in lead fragments being left in prairie dog carcasses, posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Some limited rodenticide use could occur in some national grassland colonies that border the Badlands National Park in the Bigfoot Road area. Due to the limited habitat potential for ferrets within this area of the Park, potential effects on ferrets in this area of the Park would be insignificant and discountable.

There may be some ferrets inhabiting prairie dog colonies that overlap boundaries of Badlands National Park and Forest Service managed lands. Ferrets located in Badlands National Park are considered threatened for section 7 purposes but since lethal control of prairie dogs will not occur in those colonies adjacent to Badlands National Park that may be inhabited by ferrets, the biological determination for ferrets within the Park is "may affect, but not likely to adversely affect".

## WHOOPING CRANE

### *Grus Americana*

**Distribution and Status.** Whooping cranes were once near extinction with only 15 or 16 wintering individuals in 1941, but by 1995 there were 257 birds in captivity and in the wild (Lewis 1995). These large white cranes are rare migrants across Fort Pierre National Grassland (Peterson et al. 1991), Buffalo Gap National Grassland (Graupman et al. 1991), and the Bessey Ranger District (Peterson et al. 1993). The whooping cranes that migrate through South Dakota and Nebraska nest in Canada and winter on the Texas Gulf Coast (Ashton and Dowd 1991).

**Habitat.** Locally, the migrants use shallow water, including stock dams, as overnight roost sites (Ashton and Dowd 1991). Most wetlands used for roosting during migration were less than about 10 acres in size and within 1 km of suitable feeding sites, croplands or wetlands (Lewis 1995). The birds are omnivorous and feed on plants and animals, including grain (Ashton and Dowd 1991).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA—Endangered	G1, N1N; Nebraska - S1; South Dakota - SNA

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** In fall, whooping cranes are known to migrate through South Dakota between 8 September and 11 November (Tallman et al. 2002). Maps E-11 through E-13 displays local sites in the project area where the birds have rested during past migrations.

Conservation agencies monitor these birds as they migrate from Canada to the Gulf Coast. A contingency plan is in place to protect whooping cranes should they appear locally during fall migration.

**Direct, Indirect, and Cumulative Effects.** There is a remote possibility that whooping cranes could be exposed to rodenticide bait (oats) if they stopped on a project area during migration. Feeding patterns of the cranes, the low concentration of zinc phosphide in the bait, the small amount of bait applied per unit area, widely scattered bait, and the short time bait is exposed contribute to low primary and secondary hazards to the birds (Tietjen 1976).

The actual process of applying rodenticide might also deter or scare cranes from the immediate area.

Changes in the structure and composition of vegetation after prairie dog poisoning occurs would not affect cranes, as they are only present on the ground locally while resting along migration routes.

The application of prairie dog rodenticide or sport shooting would not influence food available for these migrants.

Whooping cranes could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a whooping crane for a prairie dog. The fact that the whooping crane is a protected species should be a deterrent. There are very stiff penalties for killing or injuring an endangered species, and this is well known. Gunfire and other hunter activities might scare birds locally, but these potential effects are considered insignificant and discountable.

Cumulative effects to whooping cranes include collisions with fences and power lines. Lawless shooters sometimes kill birds.

## DETERMINATION OF EFFECT AND RATIONALE FOR THE WHOOPING CRANE

**Buffalo Gap N.G, Fort Pierre N.G, & Oglala N.G.** The biological determination for whooping cranes under the preferred alternative is: “*may affect, not likely to adversely affect*”.

**Rationale:** With the implementation of this alternative, it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012, and it is anticipated that rodenticide could be applied to between 7,330 and 9,420 acres of prairie dogs each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures would not be applied to the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled.

It is possible that whooping cranes could ingest rodenticide bait in treated colonies. Realistically, the likelihood of whooping cranes landing where rodenticide was recently applied is so remote that it is considered a “discountable effect.” The contingency plan (administrative record) is in place and consultation with the FWS would help reduce risks to cranes. If whooping cranes are sighted in an area where rodenticide is being applied, poisoning operation will be stopped until the cranes leave the area or are hazed out of the area. In addition, if rodenticide has been applied to an area where cranes have been seen, the area will be watched and any cranes that come near the rodenticide will be hazed until they leave the treated colony to ensure no birds are exposed to treated grain.

This alternative could increase the chance of a prairie dog shooter coming into contact with a whooping crane, but the effects will still be discountable (see the above discussion). Shooting within the one mile boundary management zone in Conata Basin will be used to augment the rodenticide treatment. Shooting does not change the acreages of prairie dog habitat in this analysis. Shooting in the Smithwick area could likely slow the growth of the prairie dog colonies and reduce the densities of prairie dogs within the colony. This will not have any measurable effect on overall whooping crane populations.

### BALD EAGLE

#### *Haliaeetus leucocephalus*

**Distribution and Status.** Bald eagles are mainly winter residents or migrating individuals in South Dakota, Wyoming, Colorado, and Nebraska, with few, but increasing, isolated nesting occurrences. It is a fairly common winter resident in suitable habitat along major riparian areas and river systems. In South Dakota, they are listed as an uncommon migrant (SDOU 1991), but there has been an increase in nesting pairs recently. In Nebraska, the first successful nest was documented in 1992 on the Loup River, and successful nest have been reported each year since (Central Nebraska Public Power and Irrigation District 2004).

**Habitat.** The Bald Eagle is mostly found near water, primarily on river systems, large lakes, reservoirs and coastal areas. These birds are mainly scavengers, feeding on dead and dying fish, rodents, waterfowl, and other animals. Bald Eagles generally roost together in large mature trees surrounded by a buffer of smaller trees (Ashton and Dowd 1991).



## ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA - Threatened	G4, N4B, N4N; Nebraska - S1; South Dakota - S1B, S2N

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** Nebraska and South Dakota are included in the Northern States Bald Eagle Recovery Zone. The recovery plan for the northern states was prepared in 1983. Although critical habitat has been designated, none of the areas is on or near NFS lands within the planning area. The general goals for delisting the species is 1,200 occupied breeding territories in the Northern States recovery zones. Delisting goals have already been met for the Northern States recovery zone (U.S. Fish and Wildlife Service 1995 and 1999).

**Existing Conditions.** Maps E-14 through E-17 displays the recorded locations of bald eagles on the various units of the NNF. There are no documented bald eagle nests on the NNF. In the spring of 2004, South Dakota Game Fish & Parks worked with the FWS, the National Park Service, and the Nebraska Game and Parks to perform aerial surveys to locate all of the active bald eagle nests in South Dakota. As of the end of April, there were 32 active bald eagle nests in South Dakota or on the Nebraska side of the Missouri River along the shared river boundary. Nests were found in Fall River and Lyman counties which are in the vicinities of the Buffalo Gap National Grassland & Fort Pierre National Grassland respectively (SDGFP Web Page 2004). Winter roost and spring nest surveys have been completed on the segments of the Cheyenne River that are part of the Buffalo Gap National Grassland. Individual bald eagles have been sighted but no winter roost concentrations or nests have been found (Hetlet 1994-2004).

**Direct, Indirect, and Cumulative Effects.** Bald eagles are present on the NNF after October 1 when the rodenticide treatments will take place, so they could be exposed to the zinc phosphide treated grain. They are not a granivorous species so direct consumption of the treated grain is not expected. They are known to feed on carrion (Ashton and Dowd, 1991), so consumption of prairie dogs that have been poisoned is a possibility. This threat is lessened, because most prairie dogs poisoned with zinc phosphide treated grains die inside their burrows (Tietjen 1976). Tietjen (1976) cited two studies, one in which bald eagles were fed zinc phosphide killed nutria (*Myocaster coypus*); in the other, golden eagles (*Aquila chrysaetos*) were fed jackrabbits (*Lepus californicus*) that were killed with zinc phosphide. In both cases, the eagles showed no sign of secondary intoxication. Incidental contact with crews applying rodenticide may disturb the birds temporarily, but they should not be displaced for long from foraging areas on prairie dog colonies.

Bald eagles could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a bald eagle for a prairie dog. It is always possible for an unethical prairie dog shooter to kill an eagle. The fact that the bald eagle is protected under both the ESA and the Bald and Golden Eagle Protection Act and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring an endangered species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area. They are known to feed on carrion (Ashton and Dowd, 1991), so consumption of prairie dogs that have

been shot is a possibility. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Because of abundant prey, it would be expected that bald eagles would frequent prairie dog colonies for hunting, but they are not dependent on prairie dogs or prairie dog colonies for their survival. Prey base for bald eagles could be reduced when prairie dog colonies are managed. In the short term, prairie dogs and other susceptible species are killed directly by the poison. In the long term, after repeated treatment, the habitat could convert from a prairie dog colony to a mixedgrass prairie. The densities of both small mammals and birds were less on mixed grasslands compared to prairie dog colonies in a study completed in South Dakota (Agnew 1983). This is not expected to affect bald eagle populations, considering that the most important habitat for the bald eagle is near lakes and large rivers where they feed mostly on fish (DeGraaf et al. 1991).

Other activities in the area that may affect bald eagles and bald eagle habitat include but are not limited to, livestock grazing, animal damage control, trapping, and hunting.

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE BALD EAGLE**

**Buffalo Gap N.G, Fort Pierre N.G, & Oglala N.G.** The biological determination for bald eagles under the preferred alternative is: *"may affect, not likely to adversely affect"*.

**Rationale:** With the implementation of this alternative it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide would be applied to between 7,330 and 9,420 acres of prairie dogs each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be applied to the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled.

Considering that bald eagles do not eat grain and the threat of secondary poisoning is small, the direct effect of the increase in rodenticide use over the current program will be slight. The reduction in acreage of prairie dog colonies could be detrimental to bald eagles in the area because of the decreased prey base, but this can not be quantified. Considering a bald eagle is a wide ranging species and that prairie dog colonies make up a small component of their habitat, this decrease in prey base may affect a few individuals but will have little effect on overall populations.

This alternative will increase the chance of a prairie dog shooter coming into contact with a bald eagle, but the effects will still be discountable (see the above discussion). Shooting within the half mile boundary management zone in Conata Basin may be used to augment rodenticide use. Shooting would not change the acreages of prairie dog habitat in this analysis. Shooting in the Smithwick area could likely slow the growth of the prairie dog colonies and reduce the densities of prairie dogs within the colony. This will not have any measurable effect on overall bald eagle populations.

Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Table 7. Summary of Determinations Effects for Federally Listed Species

Common Name	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.
<b>MAMMALS</b>			
Black-footed ferret (within experimental population area)	NLJ	--	--
<b>BIRDS</b>			
Whooping crane	MA-NLAA	MA-NLAA	MA-NLAA
Bald eagle	MA-NLAA	MA-NLAA	MA-NLAA

**NE** = No effect-- where no effect is expected.

**MA-NLAA** = May affect, not likely to adversely affect -- where effects are expected to be insignificant (immeasurable) or discountable (extremely unlikely to occur).

**MA-LAA** = May affect, likely to adversely affect -- where effects are expected to be adverse or detrimental.

**NLJ** = Not likely to jeopardize continued existence -- where effects are expected to be beneficial, insignificant (immeasurable), or discountable (extremely unlikely to occur).

**LJ** = Likely to jeopardize continued existence -- where effects are expected to reduce appreciably the reproduction, numbers, or distribution of the species.



## VI. SENSITIVE SPECIES CONSIDERED IN THE ANALYSIS

Table 8 lists the sensitive species, or their habitats, that are located on the NNF and associated units (USDA Forest Service 2004).

**Table 8. Region 2 Sensitive Species Located on NFS Lands in the Project Area**

### STATUS: SENSITIVE

	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. Pine Ridge R. D.	Nebraska N. F. Bessey R. D.	Samuel R. McKelvie N. F.
<b>MAMMALS</b>						
Fringed-tailed myotis	K	---	K	K	---	---
Townsend's big-eared bat	K	---	P	P		
Black-tailed prairie dog	K	K	K	K	K	P
Swift fox	K	K	K	---	---	---
<b>BIRDS</b>						
American bittern	K	K	K	---	P	K
Greater prairie-chicken	---	K	---	---	K	K
Yellow-billed cuckoo	K		K	K	K	K
Long-billed curlew	K	K	K	---	K	K
American peregrine falcon	K	K	K	K	P	P
Northern goshawk	P	P	P	P	P	P
Greater sage grouse	K	---	---	---	---	---
Northern harrier	K	K	K	K	K	K
Ferruginous hawk	K	K	K	K	K	K
Chestnut-collared longspur	K	K	K	---	K	K
McCown's longspur	---	---	K	---	---	---
Short-eared owl	K	K	K		K	K
Western burrowing owl	K	K	K	K	K	K
Mountain plover	K	---	---	---	---	---
Loggerhead shrike	K	K	K	K	K	K
Brewer's sparrow	K	---	---	---	---	---
Grasshopper sparrow	K	K	K	K	K	K
Trumpeter swan	K	---	---	---	---	K
Black tern	K	K	K	---	P	P
Lewis's woodpecker	P	---	K	K	---	---
<b>AMPHIBIANS</b>						
Plains leopard frog	K	K	K	K	K	K
Northern leopard frog	K	K	K	K	K	K
<b>FISHES</b>						
Sturgeon chub	K	---	---	---	---	---
Pearl dace	---	---	---	---	P	P
Finescale dace	---	---	---	---	P	P
Plains minnow	P	P	P	---	---	---
Flathead Chub	K	---	K	---	K	K

	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.	Nebraska N.F. Pine Ridge R. D.	Nebraska N. F. Bessey R. D.	Samuel R. McKelvie N. F.
<b>INVERTEBRATES</b>						
Regal fritillary butterfly	K	K	---	---	K	---
<b>PLANTS – Ferns &amp; Allies</b>						
<i>Dryopteris carthusiana</i>	---	---	---	---	P	K
<b>PLANTS – Monocots</b>						
<i>Carex diandra</i>	---	---	---	---	P	P
<i>Cypripedium parviflorum</i>	---	---	---	---	P	P
<i>Eriophorum gracile</i>	---	---	---	---	P	P
<i>Liparis loeselii</i>	---	---	---	---	P	P
<i>Schoenoplectus hallii</i>	---	---	---	---	P	P
<b>PLANTS – Dicots</b>						
<i>Astragalus barrii</i>	K	---	P	---	---	---
<i>Eriogonum visheri</i>	K	---	P	---	---	---
<i>Utricularia minor</i>	---	---	---	---	P	P

K = Known occurrence in vicinity; date of last observation indicates that species still occurs in area,

P = Possible but unconfirmed occurrence,

## SPECIES ELIMINATED FROM FURTHER ANALYSIS

All species eliminated from further analysis have been determined to have a “no impact” biological determination.

### Screen 1 (Importance of Area)

#### GREATER PRAIRIE CHICKEN

*Tympanuchus cupido*

##### Buffalo Gap N.G & Oglala N.G.

Rationale: The Buffalo Gap National Grassland & Oglala National Grassland are outside of the current distribution of the greater prairie chicken (Svedarsky et al. 2003).

#### AMERICAN PEREGRINE FALCON

*Falco peregrinus*

Rationale: Occurrence of this species on or near the planning units is highly incidental, unpredictable and limited to migrants passing through these areas. Potential and suitable nesting habitat within the planning area either does not exist or is negligible.

#### NORTHERN GOSHAWK

*Accipiter gentilis*

Rationale: Occurrence of this species on or near the planning units is highly incidental, unpredictable, and currently limited to migrants passing through these areas. If breeding is

confirmed in the future on or near these areas, this biological evaluation will be revisited and revisions to management direction considered.

### **GREATER SAGE GROUSE**

*Centrocercus urophasianus*

#### **Fort Pierre N.G. & Oglala N.G.**

Rationale: The Fort Pierre National Grassland & Oglala National Grassland does not have enough sagebrush habitats to sustain a sage grouse population.

### **MCCOWN'S LONGSPUR**

*Calcarius mccownii*

#### **Buffalo Gap N.G & Fort Pierre N.G.**

Rationale: The Buffalo Gap National Grassland & Fort Pierre National Grassland are outside of the current distribution of the McCown's longspur (Dechant et al 2003d).

### **MOUNTAIN PLOVER**

*Charadrius montanus*

#### **Fort Pierre N.G.**

Rationale: There has never been a documented occurrence of the mountain plover on, or in the vicinity of, the Fort Pierre National Grassland.

### **BREWER'S SPARROW**

*Spizella breweri*

#### **Fort Pierre N.G.**

Rationale: The Fort Pierre National Grassland does not have enough sage brush habitats to sustain a Brewer's sparrow population.

### **TRUMPETER SWAN**

*Cygnus buccinator*

#### **Fort Pierre N.G. & Oglala N.G.**

Rationale: The only trumpeter swan sightings have been on Buffalo Gap National Grassland and Samuel R. McKelvie National Forest.

### **LEWIS'S WOODPECKER**

*Melanerpes lewis*

Rationale: Occurrence of this species on or near the planning units is highly incidental, unpredictable. This species prefers open forest and woodland, often logged or burned, including oak, coniferous forest (primarily ponderosa pine, riparian woodland and orchards, less commonly in pinyon-juniper. Distribution closely associated with open ponderosa pine forest in western North America, and is strongly associated with fire-maintained old-growth ponderosa pine (NatureServe 2004). Potential and suitable nesting habitat within the planning area either does not exist or is negligible.



**STURGEON CHUB**  
**PEARL DACE**  
**FINESCALE DACE**  
**PLAINS MINNOW**  
**FLATHEAD CHUB**

*Macrhybopsis gelida*  
*Margariscus margarita*  
*Phoxinus neogaeus*  
*Hybognathus placitus*  
*Platygobio gracilis*

Rationale: It is highly unlikely that any management direction affecting prairie dogs could significantly affect aquatic habitat and sensitive fish species that are native in the project area. While zinc phosphide is highly toxic to fresh water fish (*Kidd and James 1991*), it is highly unlikely that zinc phosphide could be carried from a prairie dog colony treated with the rodenticide to any perennial stream inhabited by any of these species in high enough concentrations to harm the fish. Factors that would prevent zinc phosphide from being carried from a treated prairie dog colony to a perennial stream include: Federal label restrictions allow bait to only be applied to active holes in limited quantities insuring most of the zinc phosphide treated grain would be quickly consumed by prairie dogs. The prairie dog colonies are located in intermittent drainages some distance from the streams and precipitation is low in the fall when the bait is being applied. If a precipitation event occurred that had potential to move water from the prairie dog colony to a perennial stream occupied by any of these fish, hydrolysis of bait would most likely occur before the bait reached the stream. Rodenticide treatment will occur around constructed water impoundments but these impoundments do not provide habitat for any of these sensitive fish species. USDA APHIS (1994) also concluded that there was no probable risk to aquatic habitats expected from the use of 2 percent zinc phosphide bait in prairie dog colonies.

**SPINULOSE WOODFERN**

*Dryopteris carthusiana*

Rationale: *D. carthusiana* is a circumboreal species found in wet woods, moist wooded slopes, stream banks, swamps and fen carr (Northern Prairie Wildlife Research Center 2004). These are habitats not affected by prairie dog management.

**LESSER PANICLED SEDGE**

*Carex diandra*

Rationale: *C. diandra* is a circumboreal species found in wet meadows, springs and fens on floating and non-floating moss mats at 6100-8600 feet (Wyoming Natural Diversity Data Base 2004). These are habitats not affected by prairie dog management.

**LESSER YELLOW LADY'S SLIPPER**

*Cypripedium parviflorum*

Rationale: *C. parviflorum* is found in Northern Lowland Forests, Northern Upland Forests and Shrub-Carrs (Northern Prairie Wildlife Research Center 2004). These are habitats not affected by prairie dog management.

**SLENDER COTTONGRASS**

*Eriophorum gracile*

Rationale: *E. gracile* occupies fens and boggy meadows (Northern Prairie Wildlife Research Center 2004). These are habitats not affected by prairie dog management.

**YELLOW WIDELIP ORCHID***Liparis loeselii*

Rationale: *L. loeselii* exists in aquatic and wetland environments such as perennially wet meadows and wet forests (Northern Prairie Wildlife Research Center 2004). These are habitats not affected by prairie dog management.

**HALL'S BULRUSH***Schoenoplectus hallii*

Rationale: *S. hallii* inhabits moist sands to sandy-peaty substrates of shores and bottoms of shallow ephemeral ponds, sinkhole ponds and other sand prairie habitats where widely fluctuating water levels keep a sand substrate free of other vegetation (NatureServe 2004). These are habitats not affected by prairie dog management.

**LESSER BLADDERWORT***Utricularia minor*

Rationale: *U. minor* is a circumboreal species found in open bogs, sedge meadows and marshlands and prefers calcium-rich shallow water (Northern Prairie Wildlife Research Center 2003). These are habitats not affected by prairie dog management.

**Screen 2 - (Threats)****FRINGED MYOTIS***Myotis thysanodes*

Rationale: Typically, these bats roost in caves, natural rock crevices and abandoned buildings. Males, when netted, were frequently found to have dirt or clay like substances within their fur and crevices of their wing membranes suggesting day roosting in soft soil crevices (Tigner and Dowd Stukel 2003). They feed on insects and will not be affected by poisoned grain. There is no information to suggest there are more flying insects on prairie dog colonies or that bats use prairie dog burrows.

**TOWNSEND'S BIG-EARED BAT***Corynorhinus townsendii*

Rationale: This bat is dependent year-round upon underground roosting sites (caves or mines) (Tigner and Dowd Stukel 2003). They feed on insects and will not be affected by poisoned grain. There is no information to suggest there are more flying insects on prairie dog colonies or that bats use prairie dog burrows.

**AMERICAN BITTERN***Botaurus lentiginosus*

Rationale: American bitterns use tall, dense, shallow- or deep-water emergent vegetation in wetlands; native vegetation in wet meadows; and moderately tall, dense, native or tame vegetation in uplands adjacent to wetlands. American bitterns prefer relatively large ( $\geq 8$  acres) wetlands, ranging in size from 8 to 550 acres (Dechant et al. 2003a). Prairie dogs will not be found in the wetland habitat.

**YELLOW-BILLED CUCKOO***Coccyzus americanus*

Rationale: Yellow-billed cuckoos favor moderately dense thickets near watercourses, as well as second growth woodlands. They are mainly insectivorous and will not be affected by poisoned grain. Prairie dogs will not be found in woodland habitat.

**LOGGERHEAD SHRIKE***Lanius ludovicianus*

Rationale: Loggerhead shrikes are generally found around brush, trees and fences. They are largely insectivorous, but do eat some small mammals, birds and reptiles (DeGraaf et al. 1991). They migrate in September (Tallman et al. 2002). Prairie dogs will not be found in woodland habitat.

**BLACK TERN***Chlidonias niger*

Rationale: Black terns may be limited by wetland size as they were absent from Iowa marshes < 5 ha (12.3 acres) and were most common in wetlands > 20 ha (49.4 acres) (Naugle 2004). Prairie dogs will not be found in the wetland habitat.

**NORTHERN LEOPARD FROG  
PLAINS LEOPARD FROG***Rana pipiens**Rana blairi*

Rationale: Northern and Plains leopard frogs are wetland obligates, using a wide variety of aquatic habitats, such as springs, slow streams, marshes, reservoirs, and lakes. It is most often found at sites with permanent water and rooted aquatic vegetation (NatureServe 2004). Prairie dogs would not be found in the aquatic habitat.

**BARR'S ORPHACA (BARR'S MILKVETCH)***Astragalus barrii*

Rationale: *A. barrii* grows primarily on dry, rocky prairie knolls, hillsides and barren areas. Populations are found on sparsely vegetated badlands and breaks of whitish, sandy-silty calcareous at elevations of 3700-5700 feet (Wyoming Natural Diversity Data Base 2003). These are habitats not affected by prairie dog management.

**VISHER'S ERIOGONUM (DAKOTA BUCKWHEAT)***Eriogonum visheri*

Rationale: *E. visheri* occupies barren shale and clay outcrops of badland formations. It occurs amidst relatively harsh growing conditions. Ground cover is lean, with a minimum of 50 percent bare ground, and more often an excess of 90 percent bare ground. Light is open, with minimal shading from surrounding geology. Erosion and deposition rates are high. Where the species occupies the badlands outwash, the slopes are low; where the species occupies the edges of alluvium the slopes are steep (NatureServe 2004). These are habitats not affected by prairie dog management. Prairie dogs may create conditions that are suitable for *E. visheri*, but would not normally colonize what is currently considered optimum suitable habitat for this species.



## ANALYSIS OF EFFECTS – SENSITIVE SPECIES

### BLACK-TAILED PRAIRIE DOG

*Cynomys ludovicianus*

**Distribution and Status.** Throughout the Great Plains, the range of the prairie dog extends from southern Canada to northern Mexico (Higgins et al. 2000). The U.S. Fish and Wildlife Service (2004a) reported that state agencies currently estimate that prairie dog occupied habitat is approximately 1,842,000 acres. In Canada and Mexico, an additional 51,589 acres of prairie dog habitat exist as reported by the U.S. Fish and Wildlife Service in a news release dated August 12, 2004.

The U.S. Fish and Wildlife Service (2000) determined that listing of the black-tailed prairie dog was warranted but precluded by other higher priority listing actions. Later, the U.S. Fish and Wildlife Service (2004a) concluded that the black-tailed prairie dog does not warrant listing.

**Habitat.** This species occurs mostly on shortgrass and mixed grass prairie. Some populations are also found in the Nebraska Sandhills. Suitability of habitats for this species is enhanced by low vegetative cover and increased visibility to detect predators and enhance social behaviors. Because of this, these animals prefer areas with disturbed soils and/or grasslands grazed by cattle or bison. They typically colonize grasslands of a wide variety of soil types that are flat to gently rolling. They avoid wetlands and areas with high water tables. Hoogland (1995), Jones et al. (1983), Knowles (1982), and Clippenger (1989) were consulted for additional information on the habitat relationships of this species.

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G3, N3N4; Nebraska – S4; South Dakota – S4; Forest Service - Sensitive Species

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** The State of South Dakota has completed the final draft of a conservation and management plan for the prairie dog, pending approval by the state legislature. Other species assessments include “The Black-tailed Prairie Dog Conservation Assessment and Strategy” (Van Pelt 1999), “An Umbrella, Multi-state Approach for the Conservation and Management of the Black-tailed Prairie Dog, *Cynomys Ludovicianus*, in the United States” (Luce 2001) and “A Multi-State Conservation Plan for the Black-tailed Prairie Dog in the United States” (Luce 2003).

**Existing Conditions.** The black-tailed prairie dog is listed as a sensitive species in Region 2, which includes the project area. Prairie dog colonies occur on Fort Pierre National Grassland, Buffalo Gap National Grassland and Oglala National Grassland. Approximate colony acreage for each unit is shown in Table 1.

There are no prairie dog colonies on the Samuel R. McKelvie National Forest and Pine Ridge Ranger District, and these areas are not included in any of the analyses. There is a small prairie

dog population consisting of several small colonies on the Bessey Ranger District, but as indicated in the Northern Great Plains Biological Assessment and Evaluation, the long-term persistence of this population is uncertain because of marginal habitat capability. Because of this uncertainty, no prairie dog rodenticide use or other management tools will be considered or authorized for this area. Management of this prairie dog population will be limited to annual monitoring to determine population status and trend.

Plague is currently not known to occur on any prairie dog colonies within lands administered by the NNF. Recently, plague was confirmed in a prairie dog in western Custer County, South Dakota in September of 2004 near the border of Wyoming and South Dakota. Prairie dogs are highly susceptible to plague and it is considered to be a serious threat to the persistence of local prairie dog populations (USDA Forest Service 2001b). Additional plague locations from subsequent surveys have not been identified to date, and monitoring is expected to continue into the foreseeable future (South Dakota Department of Game, Fish and Parks 2004). No additional information about this plague incident is known at this time. The potential for plague to occur on prairie dog colonies within lands administered by the NNF and the potential impacts are unknown, but it is acknowledged that plague can have dramatic impacts on prairie dog populations. The U.S Fish and Wildlife Service (2000) stated that the majority of suitable, plague-free prairie dog habitat occurs in South Dakota.

**Direct, Indirect and Cumulative Effects.** The prairie dog is the target species for the rodenticide use programs outlined in the proposed action. The rodenticide is 2 percent zinc phosphide bait (oats). When proper procedures are followed, efficacy of zinc phosphide bait is typically 90 percent or higher (South Dakota Department of Agriculture et al. 1994). Where other active colonies are nearby, prairie dog populations in colonies treated with rodenticide commonly recover to pre-treatment levels within 3 to 5 years (Knowles 1986, Uresk and Schenbeck 1987).

As a management tool, the recreational shooting of prairie dogs has potential to limit prairie dog populations (Vosburgh and Irby 1998). Prairie dog shooting can affect prairie dog populations and densities. As a minimum, it's suspected that shooting of prairie dogs can significantly reduce prairie dog densities (Vosburg and Irby 1998) and indefinitely maintain reduced densities in smaller isolated colonies (Knowles 1987). Shooting prairie dogs in colonies that have been previously poisoned could likely prevent or slow population recovery in those colonies. In a study conducted in eastern Wyoming, recreational shooting increased the alertness and decrease above ground activity of black-tailed prairie dogs, which in turn reduced the time spent foraging and resting. This resulted in a decrease in body condition of surviving adult prairie dogs, reduced pregnancy rate and reproductive output (Pauli 2005).

Vosburgh and Irby (1998) estimated prairie dog population declines to be approximately 2 times higher and the minimum survival to be 22 percent lower in hunted versus non-hunted prairie dog colonies. It is estimated that shooting reduces the number of prairie dogs by 2.25 per acre per year as derived from reports by Schenbeck (1994) for the Conata Basin/Badlands area. A summary from the South Dakota Department of Game, Fish and Parks (2001), states that, on non-tribal lands, recreational shooters killed 1.52 million prairie dogs in 2001 of which 86.3 percent were shot on private land. Shooting by residents occurs throughout the year and mostly in the summer, while nonresidents do most of their shooting in May, June or October depending on the type of license they possess (South Dakota Game, Fish and Parks 2001). Vosburgh and

Irby (1998) noted an increase in prairie dog hunters during September of 1994 explaining that some hunters include prairie dogs among other species they specifically planned to hunt.

Cumulatively, the use of prairie dog rodenticide and limited regulated shooting would likely be expected to keep prairie dog populations at low levels in areas where both are occurring. The impacts of shooting may be a contributing factor to prairie dog population fragmentation, in that recovery of colonies could be delayed or precluded by other factors, including rodenticide use (U.S. Fish and Wildlife Service 2000).



## DETERMINATION OF EFFECT AND RATIONALE FOR THE BLACK-TAILED PRAIRIE DOG

**Fort Pierre N.G.** The biological determination for prairie dogs under the preferred alternative is: *“may adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing”*.

**Rationale:** This alternative results in intermediate prairie dog colony acreages and rodenticide use levels (Table 2).

The Fort Pierre National Grassland currently has approximately 1,340 acres of prairie dog colonies on the unit. The expanded use of rodenticide along Forest Service boundaries could eliminate up to approximately 470 acres of prairie dog habitat within the 0.25-mile boundary management zone leaving approximately 870 acres remaining. The predicted range of prairie dog colonies across the grassland is predicted to be between 1,100 and 1,400 acres by the year 2012, suggesting that long-term viability of the prairie dog population on the unit is likely.

Given the predicted range over by the year 2012 of 1,100 and 1,400 acres of prairie dog colonies, the LRMP direction to establish one or more prairie dog complexes in the northeast portion of the grassland would likely be achieved.

**Buffalo Gap N.G.** The biological determination for prairie dogs under the preferred alternative is: *“may adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing”*.

**Rationale:** This alternative results in intermediate prairie dog colony acreages and rodenticide use levels (Table 2).

Collectively, the Buffalo Gap National Grassland has approximately 26,030 acres of prairie dog colonies. Under this alternative, 10,450 acres will be subject to rodenticide use, and it is predicted that there will be between 27,000 and 38,000 acres of active prairie dog colonies on



the Buffalo Gap National Grassland by the year 2012. In addition, some limited and regulated prairie dog shooting may also be allowed within the half-mile zone along private and tribal boundaries in the Conata Basin Black-Footed Ferret Reintroduction Habitat area. Under this alternative, the Forest Service would not consider limiting prairie dog shooting in the Smithwick Black-Footed Ferret Reintroduction Habitat area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service. Given the predicted range of 27,000 and 38,000 acres of prairie dog colonies remaining under this alternative, long-term viability would be considered likely.

**Oglala N.G.** The biological determination for prairie dogs under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing"*.

**Rationale:** This alternative results in intermediate prairie dog colony acreages and rodenticide use levels Table 2.

The Oglala National Grassland currently has approximately 2,220 acres of prairie dog colonies on the unit. The expanded use of rodenticide along Forest Service boundaries could eliminate up to approximately 1,050 acres of prairie dog colonies within the half-mile zone leaving approximately 1,170 acres. The range of prairie dog colonies across the grassland is predicted to be between 1,400 and 1,800 acres by the year 2012.

The remaining colonies of approximately 1,170 acres would likely meet the LRMP direction to establish a prairie dog colony complex. Long-term viability of prairie dogs on the grassland is likely given the predicted range of 1,400 and 1,800 acres by the year 2012.

## **SWIFT FOX**

### *Vulpes velox*

**Distribution and Status.** The swift fox is native to the short grass and mixed grass prairie in the Great Plains region of North America. It was considered common or abundant in much of its original range until the late 1800's to the early 1900's. From this period to the 1950's, the swift fox was thought to be extirpated in Kansas, Montana, and Canada, and there were no reported sightings in Oklahoma, Wyoming, South Dakota, North Dakota, and Nebraska (U.S. Fish and Wildlife Service 2000). Beginning in the 1950's, swift fox numbers appeared to be recovering over much of their former range.

**Habitat.** This species inhabits open prairies, plains and shrubby desert areas. It is found in areas with gently rolling hills or undulating topography. Swift fox prefer short to midgrass prairies and loamy soils and utilize dens year around (Harrison and Whitaker-Hoagland 2003). Soil type might be a better predictor of swift fox habitat suitability than vegetation type (Harrison and Whitaker-Hoagland 2003). Swift fox select loamy soils over clayey soils for den sites. This species is an opportunistic feeder on small mammals, birds, insects, berries, vegetation and carrion (Ashton and Dowd 1991). Predation by coyotes appears to be the most common mortality factor for swift fox (Allardyce & Sovada 2003) (Stephens & Anderson 2005). The key factor in swift fox management is to provide suitable habitat where the swift fox can obtain prey while avoiding predation.

Uresk and Sharps (1986) found swift fox in close association with prairie dog colonies in Shannon County, South Dakota. Other studies have found swift fox to thrive without prairie dog colonies (Allardyce & Sovada 2003). Size of prairie dog complexes could be very important in determining whether or not swift fox will use prairie dog colonies. Prairie dog colonies, because of the abundant prey, attract many predators. There is a possibility (although not documented in the literature) that swift fox could actually avoid the small prairie dog colonies because the abundance of predators could outweigh the benefits of an increased forage base. Allardyce & Sovada (2003) state "It is apparent from the studies done by the Swift Fox Conservation Team and the individual states during the past 3 to 5 years that swift fox populations in today's altered landscape are not necessarily dependent on the availability of prairie dog colonies and complexes." There is one prairie dog colony near the swift fox population that is on the Buffalo Gap National Grassland near Ardmore, South Dakota. None of the bait stations within 1.5 miles of this prairie dog colony had swift fox tracks in them during the 2003-4 survey (Hetlet 1991-2004).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G3, N3; Nebraska – S2; South Dakota – S1; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** Conservation assessment and conservation strategy for the swift fox was prepared in 1997 (Kahn et al. 1997). The goal of the strategy is to maintain or restore swift fox populations within each state to provide spatial, genetic, demographic structure of the United States swift fox population throughout at least 50 percent of the suitable habitat available, to ensure long term species viability and to provide species management flexibility. Nebraska and South Dakota are included in the assessment.

**Existing Condition.** Maps E-18 through E-21 displays the recorded locations of swift fox on the various units in the project area. Swift fox have been located on all three of the national grasslands. The swift fox that have been sighted on the Fort Pierre National Grassland are a result of a reintroduction effort initiated by the Turner Endangered Species Fund (TESF) on the Bad River Ranch west of Fort Pierre National Grassland (Map E-18). The swift fox that have been sighted on the east half of the Buffalo Gap National Grassland (Map E-19) are a result of a reintroduction effort initiated by the Badlands National Park. On the Oglala National Grassland (Map E-20) there have been incidental sightings of swift fox, but there is no evidence of a resident population.

Swift fox populations have blinked in and out on different areas of the west half (Map E-21) of the Buffalo Gap National Grassland (Hetlet 1991-2004) (Hodorff 2004). The only population that has persisted is located near Ardmore, South Dakota. The area is identified in the LRMP as 3.64 Special Plant and Wildlife Habitat: Swift Fox Management Area. This area is referred to as the Ardmore swift fox population.

**Direct, Indirect, and Cumulative Effects.** Swift fox are a year-round resident of the project area. They are in the area after October 1 (which is when the prairie dog colonies will be treated



with rodenticide) and could be exposed to zinc phosphide treated grain. They are not a granivorous species, so direct consumption of the treated grain is not an issue. They are known to feed on carrion (Ashton and Dowd, 1991). Schitoskey (1975) reported that if kit fox (*Vulpes macrotis*) found surface kills that were the result of a rodenticide, there is little doubt that they would eat the carcasses or return them to the den to feed their young. This threat is lessened because most prairie dogs poisoned with zinc phosphide treated grains die inside their burrows (Tietjen 1976). Schitoskey (1975) used the desert kit fox (*Vulpes macrotis arsipus*) to determine effects of zinc phosphide. The LD<sub>50</sub> for kit fox was 93 (62-140) mg/kg. When kit foxes were fed kangaroo rats (*Dipodomys ordii*) killed with zinc phosphide, there was no secondary poisoning. To put it into perspective, if a kangaroo rat swallowed or stuffed its cheeks with 1 g of the most concentrated zinc phosphide bait, it would theoretically contain 16.4 mg of the chemical. Kit foxes survived repeated feedings of rats dosed with about 29 times this amount of zinc phosphide (Schitoskey 1975). Secondary poisoning of swift fox while using zinc phosphide treated oats is not an issue.

Swift fox could be shot or injured by prairie dog shooters. The fact that swift fox is somewhat similar in appearance to a coyote pup (especially in the spring when the coyote pups are small), could increase the odds of a swift fox being killed or injured by a prairie dog shooter and unethical individuals may intentionally shoot at a swift fox while shooting prairie dogs. The fact that the swift is a protected species in the states of South Dakota and Nebraska and it is against the law to kill or harass them should be a deterrent. Also, swift fox are primarily nocturnal (Allardyce & Sovada 2003), diminishing the chance of a shooter seeing a swift fox. Gunfire and other hunter activities may scare swift fox locally, but this will not be a factor concerning their population viability on the area. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Because of abundant prey, swift fox might frequent prairie dog colonies for hunting. The prey base for swift fox would be reduced when prairie dog colonies are treated with a rodenticide. Swift fox are not dependent on prairie dogs or prairie dog colonies for their survival (Allardyce & Sovada 2003). The generalist foraging behavior of swift fox makes food an unlikely limiting factor (Allardyce & Sovada 2003).

If the prairie dogs are eliminated, the vegetation within the colony would revert from a short grass community to a mixedgrass community. Swift fox can do well in short or mixedgrass prairie (Allardyce & Sovada 2003, Uresk et al. 2003). It is doubtful that this shift in vegetation will have much effect.

Other activities in the area that may affect swift fox and swift fox habitat include but are not limited to, livestock grazing, animal damage control, trapping, & hunting.





## DETERMINATION OF EFFECT AND RATIONALE FOR THE SWIFT FOX

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for swift fox under the preferred alternative is: “*may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing*”.

**Rationale:** With the implementation of this alternative, it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of colonies each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction habitat until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Considering that swift fox will not eat the grain, and the threat of secondary poisoning is small, the direct effect of the increase in rodenticide use over the current program will be slight. The reduction in acreage of prairie dog colonies could be detrimental to swift fox in the area because of the decreased prey base, but this can not be quantified. Considering that the avoidance of predators may be more important to swift fox survival than obtaining food, the increase in predators around a prairie dog colony may actually be a deterrent, so the decrease in prairie dog acres may not be a problem. Clearly more research needs to be done on swift fox / prairie dog relationships.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a swift fox (see the above discussion). Shooting within the half mile boundary management zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog habitat in this analysis. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

## GREATER PRAIRIE CHICKEN *Tympanuchus cupido*

**Distribution and Status.** Before European settlement, greater prairie chicken generally inhabited tall grass prairies (Johnsgard 1983) in the central and northeast United States. Today they occupy less than 10 percent of this maximum historic range (Johnsgard 1983).

**Habitat.** Life requisites that potentially limit greater prairie chicken populations are the lack of tall and dense grass nesting cover or the lack of winter food (Prose 1985). The most important aspect of secure nesting cover lies in its structure rather than in plant species composition (Eng et al. 1988). A study on Fort Pierre National Grassland showed that prairie chickens generally nest at least 200 ft. from fence lines (Rice and Carter 1982). Of all the grouse, prairie chickens are the most granivorous (Hamerstrom 1950). High-energy grain from row-crops is an important winter food, and the birds may travel many miles to utilize it (Fredrickson 1990). This prairie grouse is a resident of Fort Pierre National Grassland (Peterson 1991) and the Bessey unit in the Nebraska Sand Hills (Mollhoff et al. 1993).

## ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4; Nebraska – S3S4; South Dakota – S4; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Fort Pierre National Grassland and Bessey Ranger District have high-structure grass for prairie chicken cover. Grassland on the former is interspersed with private grain fields, and the latter has prairie that supports many food-bearing forbs and shrubs, such as rose and poison ivy. On the Fort Pierre National Grassland, many spring prairie chicken courtship display grounds have been noted close to prairie dog colonies (Fort Pierre National Grassland files) (Map E-22).

This grouse is a management indicator species for the units mentioned above, as well as a Region 2 sensitive species. Prairie chickens are game birds in both South Dakota and Nebraska.

**Direct, Indirect, and Cumulative Effects.** Fort Pierre National Grassland is the only area that would be affected by rodenticide use and reduced prairie dog populations near active prairie chicken habitat.

Prairie chickens eat grain, and the potential exists for them to ingest zinc phosphide treated oats. Observations of wild birds in a wide variety of situations where this rodenticide had been placed have shown that some birds can be killed and others are unaffected (Tietjen 1976). However, prairie dog colonies are not preferred prairie chicken feeding areas, which lowers the probability of bait ingestion. Also, if safety precautions and label directions are followed during application, operations can be carried out without undue risks to nontarget species (Tietjen 1976). Factors that contribute to lower hazards are the food habits of nontarget species, the relatively low concentration of zinc phosphide in the bait, the small amount of bait applied per unit area, the widely scattered bait distribution pattern and the short time most of the bait is exposed (Tietjen 1976). Disturbances created by crews applying rodenticide may temporarily displace prairie chickens from the vicinity of the treated colonies, further reducing non-target risks.

Removing prairie dogs from an area could produce high-structure nesting cover if the range site is productive and if subsequent grazing is not too heavy. Some range sites with prairie dog colonies, such as thin claypans, are probably not capable of producing enough grass cover to provide secure nest sites for prairie chickens.

## DETERMINATION OF EFFECT AND RATIONALE FOR THE GREATER PRAIRIE CHICKEN

**Fort Pierre N.G.** The biological determination for greater prairie chickens under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** The Fort Pierre National Grassland currently has 1340 acres of prairie dog colonies on the unit. The expanded use of rodenticide along Forest Service boundaries could eliminate approximately 470 acres of prairie dog colonies within the 0.25-mile zone leaving nearly 870

acres of colonies remaining. The predicted range of prairie dog colonies across the grassland is estimated to be between 1,100 and 1,400 acres by the year 2012.

Rodenticide application could allow sod-bound grass on the more productive range sites to revert to a mixture of grasses that may produce some additional high and dense nesting and brood-rearing cover for greater prairie chickens over the long-term. In the long term, the number of active acres of prairie dog colonies will undergo a small increase and there will be no detectable change in habitat for the prairie chicken.

Although the probability is remote, individual prairie chickens could die from ingesting rodenticide bait.

## LONG-BILLED CURLEW

### *Numenius americanus*

**Distribution and Status.** Long-billed curlews breed from interior British Columbia and southern Alberta through southern Manitoba, south to central California and east to western North Dakota, central South Dakota, central Nebraska, western Kansas, northeastern New Mexico, and northern Texas (Dechant et al. 2003b). All of the units of the NNF are within there breeding range.

Long-billed curlews are ranked as secure both globally and nationally. Population declines in the western U.S. are local, not widespread, and they are apparently declining in Utah (Nature Serve 2003). In South Dakota, they are listed as a fairly common summer resident in suitable habitat west of the Missouri River (SDOU 1991).

**Habitat.** Long-billed curlews use expansive, open, level to gently sloping or rolling grasslands with short vegetation such as shortgrass or recently grazed mixed-grass prairie. Proximity to water may be an important factor in habitat selection (Dechant et. al. 2003b). This type of habitat certainly exists within prairie dog colonies, especially in areas that have recently been colonized.

Grassland structure is an important component of long-billed curlew habitat. Long-billed curlews in Nebraska used areas in which 75 percent of the total vertical vegetation density (number of plant contacts with a thin rod inserted vertically into the canopy) was found at heights <10 cm (Dechant et. al. 2003b). Preference for areas in which vegetation density is concentrated near ground level may be important in terms of the feeding behavior of long-billed curlews or their ability to see potential predators.

Long-billed curlew's breeding season diet includes insects (especially grasshoppers, but also beetles and butterflies; and other invertebrates, berries, toads, bird eggs, and nestling birds. Curlews forage in grasslands, cultivated fields, stubble fields, wet meadows, prairie dog (*Cynomys*) colonies, and occasionally along wetland margins (Dechant et. al. 2003b). The SDOU (1991) states the fall migration occurs first week of August with the latest date a long-billed curlew was seen in South Dakota as Oct 25.



## ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G5, N5B, N5N; Nebraska – S3; South Dakota – S3B; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Maps E-23 through E-26 displays the recorded locations of long-billed curlews on the various units of the NNF. They have been found on all of the National Grasslands of the NNF.

All of the grassland areas of the Buffalo Gap National Grassland, Fort Pierre National Grassland, & Oglala National Grassland are potential long-billed curlew habitat depending on the slope, potential production & grazing intensity. The long-billed curlew, in most cases, will be found on the moderate to heavily grazed sites. It is not uncommon to find them in and around prairie dog colonies (Maps E-23 through E-26)

**Direct, Indirect, and Cumulative Effects.** The long-billed curlew feeds primarily on insects and other invertebrates. They will not eat the poison grain and are not susceptible to being poisoned by the zinc phosphide treated grain. The SDOU (1991) states the fall migration for them occurs first week of August with the latest date a long-billed curlew was seen in South Dakota as Oct 25. It would be rare for a long-billed curlew to be present after October 1<sup>st</sup> when the rodenticide application will take place.

Long-billed curlews could be killed or injured by prairie dog shooters, long-billed curlews are but this would be rare and deliberate, since it is unlikely to mistake a long-billed curlew for a prairie dog. It is always possible for an unethical prairie dog shooter to kill a curlew. The fact that the long-billed curlew is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area.

The long-billed curlew is not dependent on prairie dog colonies for its existence. Breeding habitat for the long-billed curlew is low to moderate structure midgrass prairie. This habitat can be found on or off prairie dog colonies depending on many factors, like precipitation, soils, etc. On the NNF the overriding factor influencing grassland structure is livestock grazing. Objectives, standards and guidelines within the LRMP establish levels at which grassland structure will be managed by geographic area.

## DETERMINATION OF EFFECT AND RATIONALE FOR THE LONG-BILLED CURLEW

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for long-billed curlew under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide"*.

**Rationale:** With the implementation of this alternative it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of colonies each year (Table 2). Limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction habitat until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

The long-billed curlew feeds primarily on insects and other invertebrates. They do not eat the grain and are not susceptible to being poisoned by the zinc phosphide treated grain. Also, the majority of the birds migrate out of the study area before October 1 (the first day rodenticides can be applied).

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a long-billed curlew, but the effects will still be discountable (see the above discussion). Shooting within the half mile zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colonies in this analysis. This will not have any measurable effect on overall long-billed curlew populations.

Rodenticide use and reduced prairie dog populations could allow sod-bound grass on the more productive range sites to revert to a mixture of grasses that may produce some additional high cover that may be avoided by long-billed curlews over the long-term.

## GREATER SAGE GROUSE

*Centrocercus urophasianus*

**Distribution and Status.** Currently, greater sage grouse occur in somewhat disjunct ranges within suitable sagebrush habitats in central Washington through southern Idaho, much of Montana, extreme southeastern Alberta and southwestern Saskatchewan, south to the southwestern corner of North Dakota, northwestern and southwestern South Dakota, most of Wyoming, western Colorado, and portions of Utah, and west to Nevada, extreme eastern California, and southeastern Oregon (Rowland 2004).

The sage grouse is relatively common in the core of its range, but range has contracted significantly (now extirpated in five states and one province). Populations have declined 45 to 80 per cent since the 1950s and by an average of 33 per cent across ten states (essentially rangewide) since 1985. The birds are threatened by loss, fragmentation and degradation of sagebrush habitat (NatureServe 2004). In South Dakota, they are listed as a locally uncommon permanent resident of the far west on the sagebrush prairies (Tallman et al. 2002). The only occurrence on the NNF is in the Fall River West Geographic Area (FRWGA).

**Habitat.** Sagebrush shrubland is the habitat of the sage grouse. Sagebrush is the primary food of sage grouse during the summer and is almost the exclusive diet during winter. Almost all sage grouse activity occurs in sagebrush or in meadows or openings adjacent to sagebrush.

Sage grouse are unique in that they lack a muscular gizzard like other gallinaceous birds and cannot grind and digest seeds (Wallestad 1975), so they feed exclusively on soft material, mostly sagebrush during the winter and a combined diet of sagebrush and various forbs during the spring and summer. Juveniles initially consume a diet of forbs and invertebrates.

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4; Nebraska – S1; South Dakota – S2; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** The only sagebrush habitat large enough to have a population of sage grouse occurs in the West western part of the Buffalo Gap National Grassland. Within this geographic area, the LRMP identifies a 45,760 acre area as 3.64 Special Plant and Wildlife Habitat: Sage Grouse. Within this area, the sage grouse is identified as a management indicator species. Sage grouse sightings on the west half of the Buffalo Gap National Grassland are displayed in Map E-27. One sage grouse display ground has been monitored in the area since 1991, and the maximum number of birds observed on the display ground each year is listed below.

Year	# of Birds
1991	17
1992	8
1993	4
1994	4
1995	6
1996	10
1997	10
1998	11
1999	14
2000	11
2001	4
2002	4
2003	0
2004	0

No birds have been seen on the display ground since 2002.

**Direct, Indirect, and Cumulative Effects.** FRWGA is the only area that would be affected by rodenticide use and reduced prairie dog populations near sage grouse habitat.

Sage grouse are a year-around resident of the grasslands, so they could be exposed to the zinc phosphide treated grains. They lack a muscular gizzard and cannot grind and digest seeds. They do not eat grain and are not susceptible to being poisoned by the zinc phosphide treated grain.

Sagebrush shrubland is the habitat of the sage grouse. Prairie dogs avoid the sagebrush habitat because it is difficult for them to cut it down, their viewing distance is reduced and they are more susceptible to predators. One of the prairie dog colonies in this area is surrounded by sage brush and it has not appreciably expanded in the last 15 years.

### DETERMINATION OF EFFECT AND RATIONALE FOR THE SAGE GROUSE

**Buffalo Gap N.G.** The biological determination for sage grouse under the preferred alternative is: "no impact".



Rationale: Sage grouse habitat only occurs on the FRWGA. The rest of the lands within the project area do not have enough sagebrush habitats to support a sage grouse population

Sage grouse are a year-around resident of the FRWGA, so they could be exposed to the zinc phosphide treated grains. They lack a muscular gizzard and cannot grind and digest seeds. They will not eat grain and are not susceptible to being poisoned by the zinc phosphide treated grain.

With this alternative, it is predicted that there could be between 600 and 800 acres of prairie dog colonies on the FFRD WGA by 2012. This is less than 1 percent of the total area. Even if the prairie dogs did invade the sagebrush area, this would not be enough to effect the sage grouse population.

## **NORTHERN HARRIER**     *Circus cyaneus*

**Distribution and Status.** These hawks breed in the northern United States and Canada, and winter in the eastern and southern U.S., and in the western coastal mountains, south through Mexico and Central America (MacWhirter and Bildstein 1996) (Dechant 2003g). They are year-round residents of the central plains (MacWhirter and Bildstein 1996). Northern harriers are summer residents and rare winter visitors on Fort Pierre National Grassland, Buffalo Gap National Grassland, and Oglala National Grassland (Peterson et al. 1991, Graupman et al. 1991, Peterson 1993). They are residents of the Nebraska Sand Hills, including the Bessey Ranger District (Mollhoff et al. 1993).

**Habitat.** This slim hawk hunts by coursing low over the prairie, catching its prey with a sudden pounce (Sibley 2000). In summer, its foods are small- and medium-sized mammals, primarily rodents, birds (chiefly passerines and small waterbirds), reptiles, and frogs (MacWhirter and Bildstein 1996). In the north during winter, they consume *Microtis* voles almost exclusively (MacWhirter and Bildstein 1996). After killing, small mammals are sometimes eviscerated (MacWhirter and Bildstein 1996). Although harriers can nest in suitable marsh vegetation, they apparently preferred upland sites in North Dakota (Dubbart and Lokemoen 1977). But during the South Dakota Breeding Bird Atlas surveys, 60 percent of harrier nests were in marshes (Peterson 1995). In seeded fields in north central South Dakota and central North Dakota, harriers preferred tall, dense cover as upland nesting sites (Dubbart and Lokemoen 1977). They placed 52 percent of nests in cover more than about 24" tall. Forty-one percent of nests were in cover from about 12 in. to 24 in. tall. The nests were well concealed from the sides but open above. Undisturbed grasslands, especially with western snowberry (*Symphoricarpos occidentalis*) shrubs, were the locations for over half of 129 nests (Kantrud and Higgins 1992).

## **ESA Status and Other Organizational Rankings**

<b>ESA Status</b>	<b>Conservation Status<sup>1</sup></b>
ESA (no status)	G5 N5B, N5B; Nebraska – S3; South Dakota – S5B; Forest Service – Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Maps E-28 through E-29 displays recorded N. harrier sightings on the project areas. These birds have recently been added to the sensitive species list and are fairly common on all of the National Grasslands.

Northern harriers are likely to occur across all areas being considered for prairie dog management, and these raptors are known to be associated with prairie dog colonies in western South Dakota (Sharps and Uresk 1990). Since prairie dog colonies have short vegetation, and harriers use tall, dense vegetation for placing their nests, the hawks are most likely to use prairie dog colonies as sites to hunt for food.

**Direct, Indirect, and Cumulative Effects.** Harriers are likely to be present in some areas when rodenticide baits are applied. The hawks do not eat grain so they would not be at risk from direct poisoning. The possibility of secondary poisoning is remote, since most poisoned prairie dogs die in their burrows. Harriers are also known to eviscerate prey before eating, thus removing the dead prairie dog's digestive tract where residual poison is likely to be found. Bald eagles, golden eagle, and great-horned owls were fed zinc phosphide-poisoned prey during lab studies and showed no negative physiological symptoms (USDA Animal Plant and Health Inspection Service 1994). Crews applying rodenticide might disturb harriers, but this would be a temporary occurrence. The birds would continue hunting for food nearby.

An indirect effect of rodenticide use would be the loss of prairie dog colonies as foraging areas, where harriers could prey on vertebrates or invertebrates among the short grass cover. With the prairie dogs removed from the area, however, the grass would likely grow taller. Eventually litter would build up, and the parts of the area would become habitat for voles. Rather than creating a net loss of foraging areas for northern harriers, prairie dog rodenticide treatment would substitute one type of prey for another. If cattle stocking were light on areas where prairie dogs had been treated, tall, dense cover would develop and could be used as harrier nesting cover.

Northern harriers could be shot or injured by prairie dog shooters, but this would be rare and deliberate since they don't regularly sit on prairie dog mounds and it would be difficult to mistake them for prairie dogs, even at a distance. It is always possible for an unethical prairie dog shooter to kill a harrier. The fact that the northern harrier is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Shooting would reduce the number of prairie dogs in a colony. Harriers feed mostly on animals smaller than prairie dogs, and these food items would not be affected by the change in prairie dog numbers. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area.. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Cumulative effects that could harm harriers include plowing prairies to produce mono-typical croplands and draining wetlands that the birds use for nesting or foraging. Over-grazing by livestock results in low grass structure with no cover or litter for voles, which are an important harrier food source. Intentional shooting of harriers by individuals who think they are reducing predation on game birds or mammals also occurs.



## DETERMINATION OF EFFECT AND RATIONALE FOR THE NORTHERN HARRIER

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for northern harriers under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide"*.

**Rationale:** With the implementation of this alternative it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of colonies each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone.

Harriers are likely to be present in some areas when rodenticide is applied. The hawks do not eat grain so they would not be at risk of primary poisoning. The possibility of secondary poisoning is remote.

Prairie dog colonies provide harrier prey. However, grass structure is likely to increase when prairie dogs are reduced, which provides voles for prey and, possibly, potential nesting sites. Positive and negative aspects of prairie dog management to harriers would tend to offset.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a northern harrier, but the effects will still be discountable (see the above discussion). Shooting within the half mile zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colonies in this analysis. There will be no measurable effect on overall northern harrier populations. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

## FERRUGINOUS HAWK *Buteo regalis*

**Distribution and Status.** The ferruginous hawk is an open-country raptor that inhabits grasslands, shrub steppes, and deserts in the central and western part of North American (Bechard and Schmutz 1995)(Jasikoff 1982). These hawks are a summer resident and rare winter visitor on all the units included in this evaluation (Peterson et al. 1991, Graupman et al. 1991, Mollhoff et al. 1993, and Peterson 1993). The species was petitioned for listing under the Endangered Species Act in 1991 but was rejected (Ure et al. 1991). Cultivation of the prairie, grazing, poisoning small mammals, along with mining and fire in nesting habitats, were factors that caused ferruginous hawk declines (Olendorff 1993), with cultivation being the most serious.

**Habitat.** Ferruginous hawks are well adapted to semiarid grasslands of the Great Plains and are specialized for hunting grassland rodents and lagomorphs (Johnsgard 1990). Their primary prey are rabbits (*Lepus* spp.), ground squirrels (*Spermophilus* spp.), and prairie dogs (*Cynomys* spp.) (Bechard and Schmutz 1995). After killing, prey is eviscerated routinely, which may retard degradation of the carcass (Schmutz et al. 1989). These hawks place their nests-- constructed of sagebrush stems, sticks, twigs, or ground debris (Bechard and Schmutz 1995)--in trees and



shrubs (49 percent), on cliffs (21 percent), on utility structures (12 percent), or on ground outcrops (10 percent) (Olendorff 1993).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4B, N4N; Nebraska – S2; South Dakota – S4B; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Maps E-30 through E-33 displays recorded ferruginous hawk sightings on the project area. Ferruginous hawk observations have been well distributed across Oglala National Grassland, Buffalo Gap National Grassland and Fort Pierre National Grassland. The birds are seen both on and off prairie dog colonies, although the majority of observations have been off colonies.

Nests were found on Oglala National Grassland in 1988, 1994, 1996, 2003 and 2004. The 2003 nest was about five miles from a prairie dog colony. The 2004 nest was approximately 10 miles from a prairie dog colony.

On the west half of Buffalo Gap National Grassland, one nest was observed in 2002, 2003, and 2004; none were within one mile of a prairie dog colony. In the past, up to five nests have been found in a single year there, even when acres covered by prairie dog colonies were less than they are today.

These hawks are currently sighted on the east half Buffalo Gap National Grassland on a frequent basis, although nests have not been documented recently. Five nests were recorded in 1991, four of which were in Conata Basin. All of those nests were within a half-mile of prairie dog colonies.

Ferruginous hawks are fairly common on Fort Pierre National Grassland, and are often seen on prairie dog colonies. Adult hawks were spotted at two tree nests in spring 2004. One nest was 1.75 mile from a prairie dog colony. The other was over three miles from a colony. All nests that have been observed on this grassland in the past have been in trees. They have been scattered across the area in drainages where cottonwoods grow, not in the northeast grassland near the large complex of prairie dog colonies.

**Direct, Indirect, and Cumulative Effects.** Ferruginous hawks do not eat grain, so there should be no risk of primary poisoning. Secondary effects from consuming recently poisoned prairie dogs are unlikely, since carcasses are routinely eviscerated. Eagles and owls that were routinely fed zinc phosphide-killed rodents or rabbits showed no ill effects (Tietjen 1976). Incidental contact with crews applying rodenticide may disturb the birds temporarily, but they should not be displaced for long from foraging areas on prairie dog colonies.

Considering indirect effects, the area over which ferruginous hawks can effectively hunt for food may be diminished as prairie dog colonies are treated with rodenticide and the sites grow taller grass. Ferruginous hawks feed on prairie dogs, cotton-tailed rabbits, and ground squirrels, all of which are often more common on prairie dog colonies than off. However, the preferred alternative does not call for eradication of all prairie dog colonies in an area. Ferruginous hawks

are a soaring raptor, and they are mobile in searching for food. The hawks may be able to adjust their hunting patterns to forage on remaining prairie dog colonies.

Rodenticide use and reduced prairie dog populations will result in fewer options for productive ferruginous hawk hunting areas. However, prairie dog colonies are not the sole--or even the major--source of food in some parts of South Dakota. The north-central part of the state east of the Missouri River has many confirmed ferruginous hawk nests (Peterson 1995) but is not a major prairie dog area.

Ferruginous hawks could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a ferruginous hawk for a prairie dog, even at long distances. It is always possible for an unethical prairie dog shooter to kill a ferruginous hawk. The fact that they are a protected species and it is against the law to kill or harass them should be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Shooting will obviously reduce the number of prairie dogs on a colony, but enough rodents and rabbits should remain as a food source for these raptors. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area. Hawks can also learn that gunfire means easy prey availability, and the birds may be attracted to it (Bechard and Schmutz 1995). Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Harmful cumulative effects include plowing private rangelands and prairie to produce grain. Rodenticide application on private lands also adds to the effects. Fragmentation of the mixed-grass prairie by cropland and tree plantings would favor other raptor species that might compete with ferruginous hawks for food or space. Intentional shooting of hawks by individuals who think they are reducing predation on game birds or mammals also occurs.

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE FERRUGINOUS HAWK**

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for ferruginous hawks under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** With the implementation of this alternative it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of colonies each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction habitat until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Ferruginous hawks do not eat grain, so there should be no risk of primary poisoning. Secondary effects from consuming recently poisoned prairie dogs are unlikely, since carcasses are routinely eviscerated. The reduction in acreage of prairie dog colonies could be detrimental to ferruginous hawks in the area because of the decreased prey base, but this can not be quantified. The alternative does not call for eradication of all prairie dog colonies in an area. Ferruginous hawks



are a soaring raptor, and they are mobile in searching for food. The hawks may be able to adjust their hunting patterns to forage on remaining prairie dog colonies.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a ferruginous hawk, but the effects will still be discountable (see the above discussion). Shooting within the half mile zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colonies in this analysis. These actions will not have any measurable effect on overall ferruginous hawk populations. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

### CHESTNUT-COLLARED LONGSPUR *Calcarius ornatus*

**Distribution and Status.** Chestnut-collared longspurs breed from southern Alberta to southern Manitoba, south to west central Colorado, and east through North Dakota and South Dakota to western Minnesota (Dechant et. al. 2003c). They winter from northern Arizona, central & northern New Mexico, eastern Colorado, and central Kansas south into Mexico (DeGraff et al. 1991).

The chestnut-collared longspur is listed as “secure” both globally and nationally. There is some indication of reduction of historic breeding and winter ranges and long-term population declines. Elimination of prairie habitat by cultivation and conversion to urban development is listed as the primary threat. Long term population declines are likely to continue as native rangeland is converted to cropland (Nature Serve 2003). All of the units in the project area are within their breeding range with the exception of the Sandhills units (Bessey Ranger District, Samuel R. McKelvie National Forest) (Dechant et. al. 2003c). The USFS Region 2 state with the highest average relative abundance of chestnut-collared longspurs is South Dakota, with 21.98 individuals (Sedgwick 2004a).

**Habitat.** Chestnut-collared longspurs use level to rolling mixed grass and shortgrass uplands, and, in drier habitats, moist lowlands. They prefer open prairie and avoid excessively shrubby areas. Grasslands with dense litter accumulations are avoided (Dechant et. al. 2003c).

In their literature review Dechant et al. (2003c) makes no mention of chestnut-collared longspurs using prairie dog colonies. They prefer native pastures with fairly short vegetation and sparse litter accumulation. This type of habitat certainly exists within some prairie dog colonies, especially in areas that have recently been colonized. In dry, sparse shortgrass prairie, light to moderate grazing is more appropriate, and heavy grazing or overgrazing may be detrimental to chestnut-collared longspurs (Dechant et. al. 2003c). In the interior areas of prairie dog colonies, especially during a drought, the levels of cover in prairie dog colonies are comparable to heavy grazing or overgrazing and are probably avoided by chestnut-collared longspurs.

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G5, N5B, N5N; Nebraska – S2; South Dakota – S4B; Forest Service - Sensitive



<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** A conservation assessment for the chestnut-collared longspur was prepared for the Forest Service, October 7, 2004 by Sedgwick, J.A. (2004a)

**Existing Conditions.** Maps E-34 through E-35 displays the recorded locations of chestnut-collared longspurs on the various units in the project area. They have only been documented on the west half of the Buffalo Gap National Grassland, Oglala National Grassland, and Ft. Pierre National Grassland.

All of the grassland areas with level to rolling hills of the Buffalo Gap National Grassland, Fort Pierre National Grassland, & Oglala National Grassland are potential chestnut-collared longspur habitat. The chestnut-collared longspur, in most cases, will be found on the moderately to heavily grazed sites. Only one of the sightings was within a prairie dog colony.

**Direct, Indirect, and Cumulative Effects.** The chestnut-collared longspur feeds primarily on grass seed and some insects, which are gleaned from the ground. If they are in the area during the rodenticide application, they would be susceptible to being poisoned by the zinc phosphide treated grain.

The majority of these birds migrate in September. The latest date a chestnut-collared longspur was seen in South Dakota is Oct 13 (SDOU 1991). The earliest rodenticides can be applied to the NNF is Oct 1 (U. S. Forest Service 2001c). So, the majority of the birds have migrated before rodenticides can be used.

Chestnut-collared longspurs could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a chestnut-collared longspur for a prairie dog. It is always possible for an unethical prairie dog shooter to kill a longspur. The fact that chestnut-collared longspurs and all song birds are a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area.

The chestnut-collared longspur is not dependent on prairie dog colonies for its existence. Breeding habitat for chestnut-collared longspur is low to moderate structure mid grass prairie. This habitat can be found on or off prairie dog colonies depending on many factors, like precipitation, site potential, and length of time prairie dogs have inhabited the area. In the project area, the overriding factor influencing grassland structure is livestock grazing. Objectives, standards and guidelines within the LRMP establish levels at which grassland structure will be managed by geographic area.

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE CHESTNUT-COLLARED LONGSPUR**

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for chestnut-collared longspurs under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

Rationale: With the implementation of this alternative, it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of colonies each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Under this alternative, there would be increased rodenticide use and the chance of individual chestnut-collared longspurs ingesting rodenticide bait is increased. Timing restrictions on the application of rodenticide make large-scale poisoning of longspurs improbable, because most of the birds will have left the area before rodenticides are used. So, it is unlikely that the rodenticide use outlined in the preferred alternative will have a large effect on chestnut-collared longspur populations that use the area seasonally.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a chestnut-collared longspur, but the effects will still be discountable (see the above discussion). Shooting within the half mile zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colony in this analysis. These actions will not have any measurable effect on overall chestnut-collared longspur populations.

There is a possibility that in a drought the vegetation on the prairie dog colonies could reach a threshold in which chestnut-collared longspurs would avoid the area. Even if all of the prairie dog colonies were uninhabitable by chestnut-collared longspurs, there could still be more than 750,000 acres of national grassland that is within their breeding range that could be managed for enhanced habitat suitability for longspurs. The LRMP sets objectives for grassland structure and the assumption is these objectives will be met and there will be adequate habitat for chestnut-collared longspurs.

### **MCCOWN'S LONGSPUR** *Calcarius mccownii*

**Distribution and Status.** McCown's longspurs breed from southern Alberta and southern Saskatchewan, south through Montana, eastern and central Wyoming, and north central Colorado, and east to western Nebraska, north central South Dakota and southwestern North Dakota (Dechant et. al. 2003d). In Region 2 of the Forest Service, they commonly breed only on the Pawnee National Grassland in Colorado and the Thunder Basin National Grassland in Wyoming (Sedgwick 2004b).

Most populations appear to be stable or increasing, but due to a historical long-term decline in abundance on both their breeding and wintering grounds, this species is ranked by various state, federal, and private conservation organizations as a grassland "species of concern", "high priority", "imperiled", with "pressing needs", "state imperiled", or a species of "conservation concern" (Sedgwick 2004b). In South Dakota, they're listed as a rare migrant through the western tier of counties (SDOU 1991). In Nebraska, breeding has been documented in southern Sioux County (Johnsgard 1979).



**Habitat.** McCown's longspurs use grasslands with little litter and low vegetation cover, such as that provided by shortgrass or heavily grazed mixed-grass prairie (Dechant et. al. 2003d). They breed in shortgrass prairie; especially where vegetation coverage is sparse due to low soil moisture or heavy grazing, or where it is interspersed with shrubs or taller grasses Blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*) are dominant plants in nesting (Sedgwick 2004b).

There has been no research on whether or not McCown's longspurs specifically prefer the habitat created by prairie dogs (Sedgwick 2004b). Certainly, areas used by prairie dogs would create habitat characteristics that would be favorable to the McCown's longspur within the study area.

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4B, N4N; Nebraska – S3; South Dakota – SUB; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** A conservation assessment for the McCown's longspur was prepared for the Forest Service, October 13, 2004 by Sedgwick, J.A.

**Existing Conditions.** Suitable habitat for the McCown's longspurs within the project area is the long-term low structure grasslands. All grassland areas on Oglala National Grassland are potential McCown's longspur habitat, depending on management. Prairie dog colonies may be the best long-term habitat within the area.

There have not been any documented McCown's longspur sightings on Oglala National Grassland in recent years. The last McCown's longspur sited on the Oglala National Grassland was in 1994. The Oglala National Grassland is very close to both breeding and wintering population of McCown's longspurs (Dechant et. al. 2003d) (Sedgwick 2004b).

**Direct, Indirect, and Cumulative Effects.** Oglala National Grassland is the only area that would be affected by rodenticide use and reduced prairie dog populations near McCown's longspur habitat.

The diet of McCown's longspurs consists primarily of grass and forb seeds and insects, including grasshoppers, moths, beetles, and ants. McCown's are primarily granivorous during winter (Sedgwick 2004b). If they are in the area during rodenticide applications, they would be susceptible to primary poisoning if they ingest rodenticide bait. McCown's longspurs fall departure dates from the breeding grounds are variable, extending from August to late September (Saskatchewan, Montana). A few individuals may linger until early to mid-October (Saskatchewan, Colorado). Early arrival dates on the wintering grounds occur from late September (New Mexico), to early October (Arizona), to late October (Texas). They arrive in Mexico by November (Sedgwick 2004b). Although rare, migrating birds could be in the area while rodenticide application is taking place.

McCown's Longspurs use grasslands with little litter and low vegetation cover, such as that provided by shortgrass or heavily grazed mixed-grass prairie (Dechant et. al. 2003d). Blue



grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*) are dominant plants in nesting (Sedgwick 2004b). The McCown's longspur is not dependent on prairie dog colonies for its existence, but prairie dogs would create habitat characteristics that would be favorable to the McCown's longspur within the Oglala National Grassland. The overriding factor influencing grassland structure is livestock grazing. Objectives, standards and guidelines within the LRMP establish the desired levels of grassland structure.

McCown's longspurs could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a McCown's longspurs for a prairie dog. It is always possible for an unethical prairie dog shooter to kill a longspur. The fact that the McCown's longspurs and other song birds are protected and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Also, on the Oglala National Grassland, shooting regulations are not changed by this decision from LRMP direction.

#### **DETERMINATION OF EFFECT AND RATIONALE FOR THE MCCOWN'S LONGSPUR**

**Oglala N.G.** The biological determination for McCown's Longspurs under the preferred alternative is: "*may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing*".

**Rationale:** With this alternative, it is predicted that there could be between 1,400 and 1,800 acres of prairie dog colonies on the Oglala National Grassland by 2012, and it is anticipated that rodenticides will be applied to 410 to 510 acres each year.

Some limited and regulated shooting continues and would reduce prairie dog densities outside ferret reintroduction habitat, and the Forest Service defers to state guidance on any future actions to regulate prairie dog shooting in these areas.

There is always a chance of a McCown's longspur eating rodenticide bait. The probability of this happening is lessened by the fact that there are very few McCown's longspurs in the area. So, it is unlikely that rodenticide use as outlined in the preferred alternative will have any lasting affects on the McCown's longspur population in the area.

McCown's Longspurs use grasslands with little litter and low vegetation cover, such as that provided by shortgrass or heavily grazed mixed-grass prairie (Dechant et. al. 2003d). The McCown's longspur is not dependent on prairie dog colonies for its existence, but prairie dogs would create habitat characteristics that would be favorable to the McCown's longspur. Under this alternative, it is predicted that there could be between 1,400 and 1,800 acres of prairie dog colonies on the Oglala National Grassland by 2012.

#### **SHORT-EARED OWL     *Asio flammeus***

**Distribution and Status.** In North America, short-eared owls breed from Alaska and continental Canada, also including the southern Baffin Islands, south to central California, and east through Kansas, eastern Oklahoma, eastern Ohio, Pennsylvania, Maryland, and Prince Edward Island (Dechant et. al. 2003e).

This medium-sized owl of open country is a sensitive species in Region 2 and is a rare resident of Fort Pierre National Grassland (Peterson et al. 1991), Buffalo Gap National Grassland (Graupman et al. 1991), and Oglala National Grassland (Peterson 1993). It is a rare summer resident of the Nebraska Sandhills (Peterson et al. 1993). Partners in Flight list it as a species of continental concern in the prairie biome (Rich et al. 2004).

**Habitat.** The short-eared owl ranges over mid and tall grasses and marshes, often hunting during daylight (Sibley 2001). Small rodents, especially voles (*Microtis spp.*), compose a preponderance of its diet, and there have been strong shifts between years in the density and location of breeding owls, depending on fluctuating food resources (Wiggins 2004). The abundance of prairie voles in central South Dakota was positively correlated with vegetation variables that measured the height and density of the vegetation and litter, although vole abundance seemed to be correlated with litter rather than the seral stage of prairie vegetation (Fritcher 1998). Short-eared owls build their nests on the ground in open country (Clark 1975), and nests found in the Dakotas have been in cover about 12 to 24 inches high and were well concealed from the sides (Duebbert and Lokemoen 1977). Clutch size is highly variable both within and between localities (Wiggins 2004), but it is known that clutch size is higher in years of food abundance (Clark 1975, Holt and Leasure 1993). Short-eared owls use prairie dog colonies in the spring, summer, and fall months (Sharps and Uresk 1990). The current and historical threats to viable short-eared owl populations in Region 2 can be ranked as follows: 1. Loss of native grassland and wetland habitats. 2. Degradation of existing grasslands due to overgrazing by livestock. 3. Degradation of grassland habitat due to fragmentation. (Wiggins 2004).

#### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G5, N5B, N5N; Nebraska – S2; South Dakota – S3B, S3N; Forest Service-Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** A conservation assessment for the short-eared owl was prepared for the Forest Service, September 22, 2004 by Wiggins, D. (2004)

**Existing Conditions.** Maps E-36 through E-38 displays the recorded locations of short-eared owls on the various units in the project area. Short-eared owl habitat exists across the project area where adequate grass for nest sites and habitat for voles is present. Healthy prairie dog colonies have low grass structure with little or no high/dense vegetation cover to provide potential nest sites for medium-sized birds that nest on the ground, such as short-eared owls. The vegetation litter that supports populations of voles is not present, either, so there is no habitat for the owl's preferred prey. On the other hand, prairie dog colonies may provide diverse short-grass sites on which these owls may forage, although this is not an essential habitat element for them. In this respect, prairie dog colonies may be beneficial if adequate short-eared owl nesting cover and habitat for voles is available elsewhere.



**Direct, Indirect, and Cumulative Effects.** Short-eared owls do not eat grain, so primary poisoning resulting from ingestion of rodenticide bait is not an issue. There should be no secondary poisoning from consumption of gut contents of dead prairie dogs if specifications on the rodenticide label are adhered to and the few prairie dog carcasses that are found above ground are buried. This threat is lessened because most prairie dogs poisoned with zinc phosphide bait die inside their burrows (Tietjen 1976). Eagles and owls that were routinely fed zinc phosphide-killed rodents or rabbits showed no ill effects (Tietjen 1976). Incidental contact with crews applying rodenticide may disturb the birds temporarily, but they should not be displaced for long from foraging areas on prairie dog colonies.

Because of abundant prey, it would be expected that short-eared owls would frequent prairie dog colonies for hunting, but they are not dependent on prairie dogs or prairie dog colonies for their survival in the area. In fact, voles are the owl's preferred prey, and would not be present on prairie dog colonies because vegetation litter that supports populations of voles is not present.

Where prairie dog colonies sit on low productivity range sites that are heavily grazed, removing the rodents will not provide habitat for short-eared owls. However, if high and dense grass cover develops after prairie dogs have been eliminated, short-eared owls could be indirectly benefited.

Short-eared owls could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a short-eared owl for a prairie dog, even at long distance. It is always possible for an unethical prairie dog shooter to kill an owl. The fact that the short-eared owl is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area. Shooting will obviously reduce the number of prairie dogs on a colony, but enough of the rodents should survive to maintain a foraging area for these raptors. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Cumulative effects that would be harmful to these owls include destruction of private rangelands and prairies through plowing, heavy grazing that leaves little residual cover, and land development for purposes other than habitat preservation or grazing.

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE SHORT-EARED OWL**

**Buffalo Gap N.G., Fort Pierre N.G., & Oglala N.G.** The biological determination for short-eared owls under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** With the implementation of this alternative it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to between 7,330 and 9,420 acres of prairie dog colonies each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.



Considering that short-eared owls do not eat grain and the threat of secondary poisoning is small, there is no direct effect from rodenticide use. Rodenticide use would reduce acres of prairie dog colonies. This could increase high/dense cover for short-eared nesting and litter for vole habitat, the owl's preferred prey.

The preferred alternative would increase the chance of a prairie dog shooter coming into contact with a short-eared owl, but the effects would be discountable (see the above discussion). Shooting within the half mile boundary management zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colonies in this analysis. These actions will not have any measurable effect on overall short-eared owl populations. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

## BURROWING OWL

### *Athene cunicularia*

The following discussion often relies upon a thorough and recent species assessment completed by McDonald et al. (2004), and the references cited therein as well as additional references cited in this discussion.

**Distribution and Status.** The burrowing owl has a wide distribution in Canada, Mexico, and the western U.S. In the Great Plains, the species is found on all national grasslands and forests, although extirpated from the Sheyenne National Grassland in eastern North Dakota.

The historical range of the western burrowing owl once included the southern interior of British Columbia, east into Manitoba, south including Minnesota, Iowa and south-central Texas, but it is now extirpated from these areas (Figure 1). The historical range in Mexico is not known, though museums specimens in Mexico suggest that burrowing owls were once found in 28 of 32 states.

Most jurisdictions in Canada and the U.S. have shown overall declines in populations since the 1980s. No historical numbers of burrowing owls prior to the decline detected in the mid 1980s exist. The historical breeding distribution of burrowing owl was likely more extensive in the late 1800s when North America was covered by over 100 million acres of prairie dog colony habitat. This specific type of breeding habitat has been reduced to only 1.9 million acres, a substantial loss of breeding habitat.

Burrowing owls are currently undergoing a decline in range and abundance. The current breeding range of the western burrowing owl stretches from southern Alberta and Saskatchewan in Canada, south to central Mexico. The range has contracted in the east and north. Burrowing owls are currently undergoing a range wide decline in abundance.

A comprehensive, continental survey has not been conducted. A population estimate of the entire sub-species can only be derived from regional estimates. A survey of biologists in North America estimated that in 1992 there were 20,000-200,000 burrowing owls in the U.S., 2,000-20,000 in Canada, and an unknown number in Mexico. The broad estimates indicate a low confidence in their figures.

The number of breeding pairs of burrowing owls in Canada declined in the 1990's at a rate of over 20 percent per year. Saskatchewan's Operation Burrowing Owl program indicates a 95 percent decline from 1988 to 2000. A summary of findings in preferred states in the U.S. indicate:

- 12-27 percent decrease in the number of breeding pairs in California in 1986-91
- 58 percent decline in western Nebraska from 1990-1996
- 89 percent vacancy of historical sites in 1998 in Wyoming
- No owls in the eastern third of North Dakota
- Uncommon to rare in the best habitats in North Dakota north and east of the Missouri River
- Widespread but uncommon in Arizona
- Mixed trends in New Mexico depending on the status of suitable habitat
- Restricted primarily to the panhandle in Oklahoma

There is virtually no published information on population estimates or trends of resident or migrant burrowing owls in Mexico. Most studies in Mexico are anecdotal, mainly distributional records, with only a few referring to its ecology.

The Forest Service considers the burrowing owl to be a sensitive species throughout the Great Plains. The U.S. Fish and Wildlife Service lists the burrowing owl as a National Bird of Conservation Concern and designates high-priority conservation status to the species in five Bird Conservation Regions relevant to USFS Region 2 (BCR 9, 11, 16, 17, and 18). The Colorado Division of Wildlife lists the burrowing owl as threatened, and the state wildlife agencies within Wyoming, South Dakota, Nebraska, and Kansas list the burrowing owl as a Species of Concern. The species is listed as endangered in Canada and threatened in Mexico.

The status of burrowing owls in the Great Plains of Region 2 is closely tied to that of prairie dogs because of the owls' requirement for mammal-excavated burrows. Continued loss of prairie dog colonies through active eradication, habitat loss, or disease will negatively impact burrowing owl population viability. Most of the states in Region 2 have tentative evidence for recent and ongoing declines, especially in the eastern portions of the Great Plains. Recent genetic studies, however, suggest that burrowing owls are panmictic (genetically connected by extensive dispersal) and do not yet show evidence of genetic isolation among populations. Strong dispersal ability means that reversal of unfavorable conditions should result in re-establishment of burrowing owls in suitable habitat via dispersal. Little is known about threats on the wintering grounds outside Region 2. Matrix-based demographic analyses suggest that the survival rate of adult females is a key element in the population dynamics of burrowing owls.

The ultimate causes of burrowing owl population declines remain unclear. For example, in Canada the documented proximate causes related to the decline are reduced productivity, high rates of pre-migratory mortality, permanent emigration, and low recruitment rates. Possible limiting factors across western North America include a reduction in prey availability and loss of habitat. Current productivity rates may be depressed by an overall low availability of prey due to control of insects and small mammals. Significant increases in productivity rates were achieved with supplemental feeding and noted during the availability of high prey densities. The loss of ephemeral wetlands used by small mammal prey and the cultivation of prey habitat alongside roadway and railways have also degraded burrowing owl habitat. The disappearance of prairie dogs across much of western North America dramatically decreased the availability of suitable nesting and roosting burrows. Additional threats to burrowing owls may include increased



predation due to habitat fragmentation/degradation and an increase in avian predator perches (utility poles, etc) and nesting trees, illegal shooting, pesticides and other contaminants, and vehicle collisions.

**Habitat.** Burrowing owl habitat typically consists of open, dry, treeless areas on plains, prairies, and deserts. These areas are also occupied by burrowing mammals and other animals that provide nest burrows. The prairie dog is a keystone species in the Great Plains and its burrows were undoubtedly the principal breeding habitat of the burrowing owl. Indeed, the burrowing owl is often viewed as one of the unique species of a prairie dog colony. Although burrowing owls are capable of using badger and coyote burrows, and still use the burrows of Richardson's ground squirrel (*Spermophilus richardsonii*) in the far northern Great Plains, in grasslands without prairie dogs burrowing owls occur at very low densities.

Because burrowing owls spend most of their time on or in the ground and are extremely susceptible to predation, short vegetation structure is also a requirement to allow for better detection of predators and visibility of prey. Given this requirement for short vegetation, burrowing owls are commonly found in association with cattle, prairie dogs, and other grazers that clip vegetation.

Burrowing owls nest in clusters within prairie dog colonies. In small colonies, burrowing owls either nest closer together or there are a lower number of owls within a cluster. The number of burrowing owls within a cluster positively influences reproductive success. For example, burrowing owls may alert each other to predators. In small colonies where owls nest at high densities, nests may be successful but they fledge fewer young perhaps due to competition with neighboring owls. In prairie dog colonies, burrowing owl reproductive success has been most strongly correlated with active prairie dog burrow densities and the number of nesting pairs. At the prairie dog colony scale, colonies that have enough desirable habitats to allow for greater mean spacing of nests allow early arriving nesting pairs to select these colonies and to achieve greater reproductive success. The key element is colony size. Larger prairie dog colonies fledge more young than small colonies. Lower burrowing owl pair densities which are found in larger colonies have greater mean egg clutch sizes.

The total extent of burrowing owl habitat loss in western North America is not known. The open grasslands of the Great Plains eco-region occur from southern Canada south to central Mexico encompassing 19 percent of the total land cover of North America. Of the several million square miles of the central grasslands of North America, 28 percent is in Canada, 58 percent is in the U.S. and another 14 percent is found in Mexico. However, less than 25 percent of the original grasslands remain as native vegetation in Canada and the U.S., and in some states and provinces as little as 1 percent remains. Grassland patches in Mexico were originally widely distributed throughout several ecosystem types, but most grassland has since disappeared through human activities. Regions of suitable grasslands and desert habitat occur west of the continental divide, although the relatively high density of human activity especially in western coast states exerts tremendous pressure towards conversion of suitable habitat to agriculture or urban development. Since burrowing owls require the open habitats that are also preferred for agriculture and development, continued conversion of land will likely lead to further declines of owls in those areas.

Burrowing owls hunt by ground foraging, hovering, from a perch or by flycatching. Burrowing owls eat primarily small mammals and insects. Land use management of native habitat,



particularly grazing intensity, may affect the abundance of prey. In addition, grasshopper control has greatly reduced the intensity and frequency of grasshopper outbreaks in the past century, a potentially significant source of prey for burrowing owls.

Pesticides can be either lethal to burrowing owls or sub-lethal leading to reduced fitness of the owls. Indirect pesticide effects include reduced potential prey availability, secondary poisoning through scavenging dead rodents and other prey items, and reduction in productivity due to anticholinesterase insecticides. Granular carbofuran is restricted in the U.S. and Canada and its liquid formulations are banned in Canada but still used in the U.S. in corn and alfalfa fields. Although DDT was banned in the U.S. in 1972, burrowing owl eggshell thinning associated with DDT metabolites in eggs and feathers is occasionally problematic in California. An evaluation of pesticide use on the wintering grounds has not been conducted.

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4B, N4N; Nebraska – S3; South Dakota – S3S4B; Forest Service - Sensitive Species

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** Nebraska and South Dakota are included in the Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States (Klute et al. 2003). Several other conservation and assessment efforts have been published (Holroyd, G.L. et al. 2001, Johnson and Anderson, 2002). Canada, Mexico, and the United States have drafted a North American Conservation Action Plan for the burrowing owl to be published in 2005 (Commission for Environmental Cooperation 2005).

**Existing Conditions.** Maps E-39 through E-42 displays the recorded locations of burrowing owls on the NNF. Throughout the years burrowing owls have been seen on almost all of the established prairie dog colonies at one time or another. Buffalo Gap National Grassland, Conata Basin in particular, contains one of the largest concentrations or complexes of prairie dog colonies in South Dakota, indeed anywhere in the range of the prairie dog. Fort Pierre National Grassland and Oglala National Grassland contain relatively small areas of prairie dog colonies when compared to Buffalo Gap National Grassland and tribal lands. Buffalo Gap National Grassland and tribal lands in South Dakota contain the largest prairie dog complexes of significance to the burrowing owl throughout the burrowing owl's breeding range. To the north and west of South Dakota burrowing owl occurrence on prairie dog colonies declines dramatically for unknown reasons. Therefore, the large prairie dog colony complexes in South Dakota are unique for burrowing owls. No such areas exist on private lands or public lands in the Great Plains that could sustain large populations of burrowing owls.

Large complexes of prairie dogs have existed in South Dakota for several decades. Many colonies are of some antiquity (White 1986). They are colonies of "historic" importance to burrowing owls – likely used every year by burrowing owls. Burrowing owls often reuse the same territories (and even burrows) as the previous year. This is an indication of site fidelity and the importance of specific site characteristics or a combination of both.

**Direct, Indirect and Cumulative Effects.** The burrowing owl feeds primarily on insects, including macro-arthropods, and small mammals but also take some birds, fishes, and frogs. Although the burrowing owl does not normally feed on prairie dogs, it has been noted to die from secondary poisoning following prairie dog rodenticide programs (Tyler 1968). Burrowing owls do not eat rodenticide bait (oats) although they could eat deer mice and northern grasshopper mice (*Onychomys leucogaster*) that have been poisoned by rodenticide. Deer mice and northern grasshopper mice populations are higher on prairie dog colonies than on uncolonized areas (Agnew et al. 1986). Changes in deer mice densities and populations of deer mice have been reported following rodenticide application (Wood 1965, Uresk et al. 1988, Deisch et al. 1990). Arthropod populations are higher on prairie dog colonies than on adjacent uncolonized prairie (Agnew et al. 1988). Rodenticide use can reduce the arthropod populations upon which burrowing owls depend.

Burrowing owls migrate in late September. The latest dates of migration in South Dakota were listed as 13<sup>th</sup> of October and the 26<sup>th</sup> of October. Consumption of poisoned mice during migration on attractive habitat such as the large colony complexes on Buffalo Gap National Grassland may take an unknown number of burrowing owls. Incidental contact with crews applying rodenticide may disturb the birds temporarily, but they should not be displaced for long from foraging areas on prairie dog colonies.

Substantial rodenticide use has already occurred in South Dakota. Rodenticides have already been applied to approximately 6,780 acres of colonies on Buffalo Gap National Grassland in 2004. Nearly 17,000 acres of prairie dog colonies have been treated with rodenticide on nearby private land by the State of South Dakota. The Tribes have purchased enough rodenticide to poison 16,000 acres of prairie dog colonies on the Pine Ridge and Rosebud Indian Reservations. So, extensive use of rodenticides (39,000) has or soon will likely take place on 10 percent of the 412,000 acres of prairie dog colonies estimated to occur in South Dakota. It is likely that there will be additional and substantial requests for more rodenticide use on tribal and private lands. Cumulatively, past and planned prairie dog rodenticide use represents a substantial loss of burrowing owl habitat.

Shooting as a byproduct of recreational prairie dog shooting is a potential source of anthropogenic mortality. Shooting reduced the adult population of prairie dogs by 69 percent in a Montana colony (Knowles 1987). In one Oklahoma population, shooting accounted for 66 percent of total burrowing owl adult mortality, and in a Canadian study, three burrowing owl populations were greatly reduced by prairie dog shooting. Recreational shooting in prairie dog colonies also has a potentially more widespread though subtle and indirect effect on burrowing owl survival and productivity. Nest success rates and number of young fledged by owls in prairie dog colonies subject to recreational shooting are significantly lower than in colonies where shooting of prairie dogs did not occur. Shooting restrictions and LRMP management decisions on behalf of ferrets appear to have a beneficial effect on burrowing owls. Unrestricted shooting reduces active burrow densities and results in burrowing owl mortality. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Rates of badger predation on burrowing owls are inversely related to measures of prairie dog density. Rates are likely due to the dilution effect, that is, prairie dogs are "preferred" prey by badgers but once prairie dogs are removed (or reduced) from the system, burrowing owls



become alternative prey. The burrowing owls are more obvious once the prairie dogs are removed (or reduced) which may also increase vulnerability to predation. Increased rates of badger predation have the greatest impact on the survival of juveniles and adult females (sole incubator of eggs and young).

Burrowing owl populations exhibit significant declines concurrent with reductions in active prairie dog burrow densities. There is, however, a time lag in burrowing owl response to changes in prairie dog densities, possibly because they return to the same sites in subsequent years and when the habitat quality changes as a result of rodenticide application there is increased susceptibility of the nest and incubating female to predation. As a result, over time, the population will decline. This may also be related to the fact that burrowing owls have a higher return rate at sites where they bred successfully the previous year. As reproductive success declines in prairie dog colonies in which rodenticides have been applied there may be a combination of higher mortality and lower site fidelity amongst burrowing owls. The end result may be that the burrowing owl population declines and may eventually be extirpated from the area.



## DETERMINATION OF EFFECT AND RATIONALE FOR THE BURROWING OWL

**Fort Pierre N.G.** The biological determination for burrowing owl under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** This alternative results in intermediate prairie dog colony acreages and levels of rodenticide use. Fort Pierre National Grassland currently has 1,340 acres of prairie dogs on the unit. The expanded use of rodenticide along Forest Service boundaries could eliminate approximately 470 acres of prairie dog habitat within the 0.25-mile zone with 870 acres remaining. The predicted range of prairie dog acres across the grassland is estimated to be between 1,100 and 1,400 acres by 2012.

Under the preferred alternative, Fort Pierre National Grassland prairie dog colony acreage would change from the current 1,270 acres (potential habitat for 87 burrowing owl nests) to 1,100 and 1,400 acres (potential habitat for 70 to 90 burrowing owl nests) by 2012, although in the immediate future colony acreage would fall to 870 acres. Burrowing owl habitat would remain stable or increase over current levels retaining the current population of burrowing owls.

**Buffalo Gap N.G:** The biological determination for the burrowing owl under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** Buffalo Gap National Grassland harbors about 26,030 acres of prairie dog colonies. Under the preferred alternative, the expanded use of rodenticide along Forest Service boundaries



will reduce the total acreage to about 22,360. In addition, some limited and regulated prairie dog shooting will also be allowed within the one-mile zone. The range of prairie dog acreage across the grassland is predicted to be 27,000 and 38,000 acres by 2012.

Some limited and regulated shooting in the Conata Basin ferret habitat can be considered and authorized in the 0.5 mile zone along private and tribal boundaries, if minimum ferret population thresholds continue to be met and incidental take of ferrets is not likely to be exceeded. The shooting closure prescribed in the LRMP for ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, shooting restrictions or closures will not be considered by the Forest Service in the Smithwick until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Under the preferred alternative, Buffalo Gap National Grassland prairie dog colony acreage would change from 26,030 acres (potential habitat for 1,666 burrowing owl nests) to 27,000 and 38,000 acres (potential habitat for 1,728 to 2,432 burrowing owl nests). The colony acreage treated with rodenticide on Buffalo Gap National Grassland would turn into sink habitat for burrowing owls, with populations in those areas not being sustainable. Burrowing owl populations on prairie dog colonies that are subject to repeated rodenticide applications would be at a high risk. Due to its size, distribution of colonies, and documented nesting efforts and high reproductive success, Buffalo Gap National Grassland is important for nesting burrowing owls. There would be increased vulnerability to predation (reduced survival of adult females and juveniles) and reduced reproduction in rodenticide areas, loss of sites that have a "historic" importance to burrowing owls, a reduction in colony size and reduced cluster dynamics (fewer pairs or nesting in higher densities – both which have been documented to negatively effect reproduction) and effects of complex fragmentation on the distribution of suitable nesting and foraging sites.

This alternative could authorize shooting within the 0.5 mile buffer zone in Conata Basin and delays the shooting closure in the Smithwick area. This does increase the chance of a burrowing owl coming into contact with prairie dog shooters. Shooting within the 0.5 mile zone in Conata Basin will be used to augment rodenticide use. Shooting does not change the acreages of prairie dog colony in this analysis. Prairie dog shooting can leave lead fragments in prairie dog carcasses posing a potential risk to scavengers (Jonathan Pauli pers. communication).

Prairie dog shooting is a source of owl mortality in certain areas. Shooting has accounted for 66 percent of total adult burrowing owl mortality in some prairie dog colonies and some populations have been decimated by shooting. Recreational shooting in prairie dog colonies also has a potentially more widespread though subtle and indirect effect on burrowing owl survival and productivity. Nest success rates and number of young fledged by owls in prairie dog colonies subject to recreational shooting can be significantly lower than in colonies where shooting of prairie dogs did not occur.

**Oglala N.G.** The biological determination for the burrowing owl under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** Oglala National Grassland currently harbors 2,220 acres of prairie dog colonies. The expanded use of rodenticide along Forest Service boundaries will reduce colony acres to 1,170.

The predicted range of prairie dog colonies is 1,400 to 1,800 acres, potential habitat for 90 to 115 burrowing owl nests by 2012.

Because of the decrease in prairie dogs, burrowing owl habitat would also be reduced, although the remaining colony acres would likely maintain as viable a population of burrowing owls as has existed on Oglala National Grassland in the past.

## **MOUNTAIN PLOVER**      *Charadrius montanus*

**Distribution and Status.** Mountain plovers breed from southeastern Alberta and southwestern Saskatchewan through central Montana, south to south central Wyoming, east central Colorado and northeastern New Mexico, and east to northern Texas and western Kansas (Dechant et. al. 2003f).

In 1999, the mountain plover was proposed for listing as a threatened species under the Endangered Species Act by the U.S. Fish and Wildlife Service. Higher priority listings precluded further action, until several groups submitted a 60-day Notice of Intent to sue the Secretary of the Department of the Interior for failure to comply with legal deadlines established under the Act for completing listing actions. In response, USFWS re-examined the case. On September 9, 2003, the agency published a notice in the Federal Register (60 FR 53083) withdrawing its proposed rule to list the mountain plover as a threatened species. Following further review and examination of new data, USFWS determined that the mountain plover was not warranted for federal listing because threats to the species were “not as significant as earlier believed” (Dinsmore 2003).

The mountain plover is listed as “imperiled” both globally and nationally. Reasons for the determination are fewer than 100 occurrences, limited suitable nesting habitat and wintering habitat being converted into agricultural land, and the rapid decline of the last few decades is continuing (Nature Serve 2003). In South Dakota they are listed as a former rare breeder in the west (SDOU 1991). There are old records of mountain plovers in Fall River County (SDOU 1991) and a pair was observed in 1977 in Bennett County, one mile north of Tuthill (South Dakota Bird Notes 1977). In Nebraska there are records of mountain plovers inhabiting Dawes and Sioux counties before 1920 but there are no recent sightings in this area (Ducey 1988).

**Habitat.** Mountain plovers are a disturbed-prairie or semi desert species, rather than a grassland species. They prefer disturbed habitats for nesting, including areas formerly occupied by bison and prairie dogs and agricultural fields (Dinsmore 2003). Mountain plovers prefer large, flat grassland expanses with sparse, short vegetation, and bare ground. Areas disturbed by prairie dogs, heavy grazing, or fire can provide suitable habitat. Mountain plovers were found to selectively inhabit black-tail prairie dog colonies in north-central Montana (Knowles et al. 1982). The species often nests near cow pies, rocks, or clumps of vegetation. In mixed grass prairie and other areas where vegetation is too tall, thick, or shrubby, prairie dog colonies provide a mixture of short grass and bare ground that is suitable for mountain plovers. (Dechant et. al. 2003f).

Departure from the breeding grounds varies latitudinally, with southbound plovers exiting north-central Montana by late September, Wyoming and northeastern Colorado by mid-October, and southeastern Colorado by late October (Dinsmore 2003).



The mountain plover is insectivorous, although its specific food habits have been studied very little. They feed on ground-dwelling invertebrates, primarily beetles (Coleoptera), grasshoppers and crickets (Orthoptera), and ants (Hymenoptera) (Dinsmore 2003).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G2, N2B, N2N; Nebraska – S1B; South Dakota – SX; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** A conservation assessment for the mountain plover was prepared for the Forest Service, December 8, 2003 by Stephen J. Dinsmore.

**Existing Conditions.** The suitable habitat for the mountain plover is the long-term low structure grasslands. All of the grassland areas on Oglala National Grassland and Buffalo Gap National Grassland are considered potential mountain plover habitat, depending on the grazing intensity. Prairie dog colonies may be the best long-term habitat.

The only mountain plover documented in the project area in recent years occurred in Conata Basin in the summer of 2004 (Map E-43). None of the national grasslands and forests in the project area are considered in their current breeding range (Dinsmore 2003, Dechant et. al. 2003f). Their historic range included western Nebraska and extreme western South Dakota (Dinsmore 2003), which would include parts of Buffalo Gap National Grassland and Oglala National Grassland.

**Direct, Indirect, and Cumulative Effects.** The mountain plover feeds primarily on insects and other invertebrates. They do not eat grain and are therefore not susceptible to primary poisoning by ingesting rodenticide bait. Also, they leave their breeding ground in Wyoming (the closest population) by mid October, so most would have migrated prior to October when rodenticide use would begin.

Mountain plovers could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a mountain plover for a prairie dog. It is always possible for an unethical prairie dog shooter to kill a plover. The fact that the mountain plover is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area.

Mountain plovers prefer large, flat grassland expanses with sparse, short vegetation, and bare ground. The mountain plover is not dependent on prairie dog colonies for its existence, but the prairie dog colonies would be one of the few places in the project area that would produce the vegetation characteristics required by the mountain plover in the long term. The overriding factor influencing grassland structure is livestock grazing. Objectives, standards and guidelines in the LRMP establish desired levels of grassland structure.



## DETERMINATION OF EFFECT AND RATIONALE FOR THE MOUNTAIN PLOVER

**Buffalo Gap N.G & Oglala N.G.** The biological determination for mountain plover under the preferred alternative is: “no impact”.

Rationale: With this alternative, it is predicted that there could be between 28,400 and 39,800 acres of prairie dog colonies on the Buffalo Gap National Grassland & Oglala National Grassland combined by 2012, and it is anticipated that the annual use of rodenticide would range from 7,210 to 9,210 acres on the two grasslands.

Regulated shooting in the Conata Basin ferret habitat can be considered and authorized in the one-half mile zone along private and tribal boundaries if minimum ferret population thresholds continue to be met and incidental take of ferrets is not likely to exceed the set limits.

The shooting closure prescribed in the LRMP for ferret habitat applies equally to the Smithwick ferret habitat on Buffalo Gap National Grassland. However, shooting restrictions or closures will not be considered by the Forest Service until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

The mountain plover feeds predominantly on insects and other invertebrates. They will not eat the poison grain and are not susceptible to being poisoned by the zinc phosphide treated grain. Also, they leave their breeding ground in Wyoming (the closest population) by mid October, so the bulk of the birds would be gone when the rodenticide application takes place.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a mountain plover, but the effects will still be discountable (see the above discussion). Shooting within the half mile boundary management zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog habitat in this analysis. Shooting in the Smithwick area could likely slow the growth of the prairie dog colonies and reduce the densities of prairie dogs within the colony. This will not have any measurable effect on overall mountain plover populations.

With this alternative, it is predicted that there could be between 28,400 and 39,800 acres of prairie dog colonies on the two grasslands combined by 2012. These acres could be used by mountain plovers.

The overriding factor in the “no impact” determination is the lack of a resident mountain plover population on Buffalo Gap National Grassland (SDOU 1991).

### **BREWER’S SPARROW**     *Spizella breweri*

**Distribution and Status.** Brewer's sparrows breed from southern British Columbia east to southeastern Alberta and southwestern Saskatchewan, south through the Columbia River Basin east of the Cascade crest, and throughout the Great Basin east of the Sierra Nevada crest as far south as southern California, southern Nevada, and northern Arizona. The species regularly breeds east to northwestern New Mexico, eastern Colorado, northwestern Nebraska, western South Dakota, and southwestern North Dakota, with sporadic breeding in western Nebraska, extreme southwestern Kansas, western Oklahoma, and northern Texas (Walker 2004). In South Dakota they are listed as an uncommon summer resident in the extreme southeast and northwest

(SDOU 1991, Holmes and Johnson 2005). In Nebraska they have been documented in Sioux county (Ducey 1988, Mollhoff 2001, Sharp et al. 2001, Holmes and Johnson 2005).

**Habitat.** Brewer's sparrows are closely associated with shrublands dominated by big sagebrush (*Artemisia tridentata*). For that reason, they generally are considered a "sagebrush-obligate" or "shrubland-obligate" species (Walker 2004). Suitable habitat includes sagebrush-dominated shrublands with >10 percent average shrub cover and an average shrub height of 0.5 - 1.5 m (Walker 2004). In general, Brewer's sparrow abundance decreases as average shrub cover decreases below 10-13 percent, and Brewer's sparrows disappear entirely when average shrub cover decreases below 3-8 percent (Walker 2004). Brewer's sparrow abundance may decrease if shrub cover exceeds 50 percent (Walker 2004).

In spring and summer Brewer's sparrows consume many insects (e.g., alfalfa weevils, aphids, beet leafhoppers, caterpillars, beetles) and in the fall and winter they feed on seeds (NatureServe 2004).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G5, N5B, N5N; Nebraska – S4; South Dakota – S2B; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Recovery and Conservation Planning.** A conservation assessment for the brewer's sparrow was prepared for the Forest Service, December 8, 2003 by Jennifer Holmes and Matthew Johnson in 2005.

**Existing Conditions.** Map E-44 displays the places where Brewer's sparrows have been documented. The only sagebrush habitat large enough to have a substantial Brewer's sparrow population occurs in the western part of the Buffalo Gap National Grassland. This geographic area is identified in the LRMP as the Fall River West (FRW) Geographic area. Within the FRW the LRMP identifies a 45,760 – acre area as 3.64 Special Plant and Wildlife Habitat: Sage Grouse. This is the sagebrush habitat and where the Brewer's sparrow can be found. The FRRD has initiated a study in this area in which 72 bird point count plots were set up and surveys were completed in June of 2003 and 2004. In 2003, Brewer's sparrows were detected on 51 percent of the plots, and in 2004, 42 percent of the counts had Brewer's sparrows. Small amounts of sagebrush habitat occur on Oglala National Grassland. To date, no brewer's sparrows have been found on the Oglala National Grassland but there are records of Brewer's sparrows in the vicinity (Ducey 1988, Mollhoff 2001, Sharp et al. 2001).

**Direct, Indirect, and Cumulative Effects.** The Brewer's sparrow feeds primarily on seeds in the fall and winter. If they are in the area during rodenticide use, they would be susceptible to primary poisoning.

The Brewer's sparrow is a summer resident of the grasslands. They migrate in September. The latest dates of migration in South Dakota were listed as 27<sup>th</sup> of September and the 2<sup>nd</sup> of October (SDOU 1991). Generally they would not be in the area after October 1 when rodenticide use would commence. Also, Brewer's sparrows do not inhabit areas in which the average shrub cover is below 3-8 percent (Walker 2004). Sagebrush in general is absent from prairie dog



colonies. Even if Brewer's sparrows are present in the area when rodenticide is applied, they do not inhabit prairie dog colonies, so they would not be exposed to rodenticide bait under normal circumstances.

Sagebrush shrubland is the habitat of the Brewer's sparrow. Prairie dogs tend to avoid the sagebrush habitat because they are less able to see predators and are more susceptible to predation. One of the prairie dog colonies in this area is surrounded by sagebrush and has not appreciably expanded in the last 15 years.

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE BREWER'S SPARROW**

**Buffalo Gap N.G & Oglala N.G.** The biological determination for Brewer's sparrows under the preferred alternative is: "*no impact*".

Rationale: This alternative results in intermediate prairie dog colony acreages and rodenticide use levels (Table 2).

The Brewer's sparrow feeds primarily on seeds in the fall and winter. If they are in the area during rodenticide application, they would be susceptible to primary poisoning. The Brewer's sparrow is a summer resident of the grasslands. They migrate in September. The latest dates of migration in South Dakota were listed as 27<sup>th</sup> of September and the 2<sup>nd</sup> of October (SDOU 1991). In general, they would not be in the area after October 1 when the rodenticide use would begin. Also, Brewer's sparrows do not inhabit areas in which the average shrub cover is below 3-8 percent (Walker 2004). Sagebrush in general is absent from prairie dog colonies. Even if Brewer's sparrows are present in the area when rodenticide is applied, they do not inhabit prairie dog colonies, so they would not be exposed to the rodenticide under normal circumstances.

With this alternative, it is predicted that there could be between 600 and 800 acres of prairie dog colonies on the FFRD WGA by 2012 and 1,400 to 1,800 acres on the Oglala National Grassland. Even if the prairie dogs did invade the sagebrush area, this would not be enough to effect the Brewer's sparrow population.

## **GRASSHOPPER SPARROW *Ammodramus savannarum***

**Distribution and Status.** The grasshopper sparrow has a widespread distribution throughout most of the Americas, but it often breeds locally and is considered rare to uncommon in much of its range (Vickery 1996) (Dechant 2003h).

The grasshopper sparrow is considered globally "secure" by the Natural Heritage Program because of its wide distribution across North America. However, according to the Breeding Bird Survey, grasshopper sparrow populations have declined by over 60 percent during the past 25 years. The U.S. Fish and Wildlife Service list the grasshopper sparrow as a species of special concern. Within the states of Forest Service Region 2, which represent the core of this species breeding range, grasshopper sparrow populations have also exhibited long-term declines. Declines in Colorado and South Dakota have outpaced national trends.

These small ground-dwellers sing in a hissing, insect-like buzz (Sibley 2000). Hawks are infrequent predators, and loggerhead shrikes commonly impale adult and immature grasshopper



sparrows (Vickery 1996). Low-level parasitization of grasshopper sparrow nests by brown-headed cowbirds also occurs (Smith 1968).

**Habitat.** During the nesting season, these sparrows generally occupy intermediate height grassland habitat and prefer drier, sparser sites in tall grass prairies and thicker, brushier sites in short-grass prairies (Vickery 1996). The sparrow prefers moderately open grasslands and prairies with patchy bare ground, avoiding extensive shrub cover (Vickery 1996). They have been known to inhabit bunchgrasses over sod-forming grasses, although research on Fort Pierre National Grassland did not confirm this (Fritchner 1998). On Fort Pierre National Grassland, positive correlations of grasshopper sparrows with mean vegetation height, litter depth, and visual obstruction indicated western wheatgrass (*Agropyron smithii*) and green needlegrass (*Stipa viridula*) habitats supported the highest densities of grasshopper sparrows (Fritchner 1998), and there was a negative correlation with bare ground and short buffalograss (*Buchloe dactyloides*). These birds are more likely to occupy large tracts of habitat than small fragments (Samson 1980). They nest near the ground in a domed structure in over-hanging grasses with a side entrance (Vickery 1996). The birds forage on open ground in summer to satisfy a diet that consists of about 60 percent invertebrates—preferably grasshoppers—and 40 percent seeds (Vickery 1996). Grasshopper sparrows have been known to use prairie dog colonies in South Dakota (Sharps and Uresk 1990).

#### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G5, N5B, N5N; Nebraska – S4; South Dakota – S4B; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Maps E-45 through E-46 displays the recorded locations of grasshopper sparrows on the various units in the project area. These prairie sparrows are summer residents across the project area (Peterson 1991; Graupman et al. 1991; Peterson 1993; Mollhoff et al. 1993). Fall migration usually occurs from mid-August through early September, although individuals may be in South Dakota until about October 26 (Tallman et al. 2002).

**Direct, Indirect, and Cumulative Effects.** This species eats grain and if they are in the area during rodenticide use, they would be susceptible to primary poisoning. They usually migrate from the area well before rodenticide is applied in prairie dog colonies. The short grasses of prairie dog colonies are not preferred habitat, and there are not likely to be many, if any, grasshopper sparrows in the immediate vicinity when the rodenticide is applied.

Eliminating prairie dogs would result in the vegetation on the colony changing from shortgrass to a mixed-grass prairie that supports taller vegetation, like western wheatgrass and green needlegrass. Small prairie dog colonies may provide some foraging sites for this bird, but generally, mixed-grass prairie is better habitat for this species than large expanses of short structure grassland. As a result, rodenticide application to prairie dogs would increase habitat for grasshopper sparrows.

Grasshopper sparrows could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a grasshopper sparrow for a prairie dog. The short grasses of prairie dog colonies are not preferred habitat, and there are not likely to be many, if

any, grasshopper sparrows in the immediate vicinity when shooting is occurring. It is always possible for an unethical prairie dog shooter to kill a grasshopper sparrow. The fact that the grasshopper sparrow is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Gunfire and other hunter activities may scare birds locally, but this will not be a factor concerning their population viability on the area. -

Cumulative effects detrimental to grasshopper sparrows include urban development and conversion of grasslands to cropland (Slater 2004). Grasshopper sparrows require intermediate amounts of grass cover, so they benefit from frequent disturbances in the lush, more productive eastern grasslands of the region, where grass is taller and recovers more quickly (Slater 2004). In the region's arid, shorter grasslands, frequent disturbances negatively affect sparrow habitat (Slater 2004). Overgrazing in mixed and shortgrass prairies is a serious threat to grasshopper sparrow habitats (Slater 2004). They are area-sensitive birds, preferring larger grassland patches, and fragmentation of grassland poses a threat (Slater 2004).

## **DETERMINATION OF EFFECT AND RATIONALE FOR THE GRASSHOPPER SPARROW**

**Buffalo Gap N.G, Fort Pierre N.G., & Oglala N.G.** The biological determination for grasshopper sparrows under the preferred alternative is: *"may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing"*.

**Rationale:** With the implementation of this alternative, it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to 7,330 and 9,420 acres of prairie dogs each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

The grasshopper sparrow eats grain and if they are in the area during rodenticide application, they would be susceptible to primary poisoning. Most migrate from the area well before rodenticide use begins.

Rodenticide use would reduce acres of prairie dog colonies. On these areas, management that favors mid-height grasses would result in less sod-bound short grasses and more nesting habitat for grasshopper sparrows.

Prairie dog colony acreages would increase under this alternative, which would reduce the extent of area effective as grasshopper sparrow habitat, especially as nesting cover. There are currently around 30,000 acres of active prairie dog colonies in the affected area and it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012. Using these numbers, there could be a loss of up to 11,000 acres of grasshopper sparrow habitat if this alternative were implemented.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a grasshopper sparrow, but the effects will still be discountable (see the above discussion).



Shooting within the half mile boundary management zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog colony in this analysis. These actions will not have any measurable effect on overall grasshopper sparrow populations

## TRUMPETER SWAN      *Cygnus buccinator*

**Distribution and Status.** This is North America's largest swan (Sibley 2000). Once, conservationists feared for its survival, but its status has improved, and the bird is no longer considered endangered (Bellrose 1976). This swan was introduced in 1960-1963 to LaCreek National Wildlife Refuge (Tallman et al. 2002), which is southeast of the Conata Basin of the Wall District, Buffalo Gap National Grassland. Most of the local population currently winters at LaCreek or further south into the Nebraska Sand Hills.

**Habitat.** Trumpeter swans live on shallow lakes and open marshes (Tallman et al. 2002). Their diet is composed of a variety marsh and aquatic plants, including tubers, stems, leaves, and seeds (Bellrose 1976).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G4, N4B, N4N; Nebraska – S2; South Dakota – S3B, S3N; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** Swans have nested and raised young on several ponds on Buffalo Gap National Grassland with one pair nesting numerous times in Conata Basin (NNF files)(Map E-47). Nesting occurs mid-April through July, although some nesting activity has been known to occur as late as September (Tallman et al. 2002).

**Direct, Indirect, and Cumulative Effects.** Since swans eat seeds, they could be susceptible to primary poisoning. Ducks and geese have been poisoned by eating grain baits in agricultural fields (Tietjen 1976). Although prairie dog rodenticide is not applied till after this species nesting season, swans can still be in the area until pond freeze-up typically in November. The activities of a crew applying rodenticide would not adversely affect swans; in fact, human activity might deter swans from using the area where rodenticide is being applied.

Changes in vegetation structure due to increases or decreases in prairie dog acres probably would not affect trumpeter swans, since they utilize primarily wetland habitats.

Trumpeter swans could be shot or injured by prairie dog shooters, but this would be rare and deliberate, since it is unlikely to mistake a trumpeter swan for a prairie dog. It is always possible for an unethical prairie dog shooter to kill a swan. The fact that the trumpeter swan is a protected species and it is against the law to kill or harass them should also be a deterrent. There are very stiff penalties for killing or injuring a protected species, and this is well known. Concentrated prairie dog shooting near trumpeter swan nests might cause nest abandonment.



## DETERMINATION OF EFFECT AND RATIONALE FOR THE TRUMPETER SWAN

**Buffalo Gap N.G:** The biological determination for trumpeter swans under the preferred alternative is: “*may adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing*”.

**Rationale:** With the implementation of this alternative, it is predicted that there could be between 27,000 and 38,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to a range of 6,800 to 8,700 acres of prairie dogs each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Individual swans might eat rodenticide bait if it is spread around ponds that they are using. Changes in vegetation structure due to increases or decreases in prairie dog acres probably would not affect trumpeter swans, since wetlands are their primary habitats.

The preferred alternative will increase the chance of a prairie dog shooter coming into contact with a trumpeter swan, but the effects will be discountable (see the above discussion). Shooting within the half mile boundary management zone in Conata Basin will be used to augment rodenticide use. Shooting will not change the acreages of prairie dog habitat in this analysis. Shooting in the Smithwick area could likely slow the growth of the prairie dog colonies and reduce the densities of prairie dogs within the colony. This will not have any measurable effect on overall trumpeter swans populations.

### REGAL FRITILLARY *Speyeria idalia*

**Distribution and Status.** These colorful butterflies historically occurred in the central and northeast United States (Scott 1986), although they have rapidly declined from the eastern portion of the range in recent years (Royer and Marrone 1992). Regal fritillaries occupy suitable habitat statewide in South Dakota (Royer and Marrone 1992).

**Habitat.** These insects inhabit wet meadows and tall grass prairie, in addition to undisturbed prairies in western South Dakota (Marrone 1992). Males emerge in late June, followed by females (Royer and Marrone 1992) who lay eggs near violets (*Viola spp.*) during late August through early September. Generally in about three weeks, upon hatching, larvae crawl to ground where they soon enter hibernation after sheltering themselves with leaves and duff (Royer and Marrone 1992). In spring, larvae feed on emergent violet leaves (Royer and Marrone 1992). On the Northern Prairie, larvae are thought to feed on Nuttall violet (*Viola nutallii*) (Marrone 1995), which grows in prairie sod (Van Bruggen 1971). For feeding adults, nectar sources are long-headed coneflower (*Ratibida columnifera*), purple coneflower (*Echinacera pallida* or *A. angustifolia*), fleabanes (*Erigeron spp.*), black-eyed susans (*Rudbeckia spp.*), gaillardias (*Gaillardia spp.*), milkweeds (*Asclepias spp.*), thistles (*Cirsium spp.*), bergamots (*Monarda spp.*), and blazing stars (*Liatris spp.*) (Moffat and McPhillips 1993). Native prairie with abundant wild flowers provides habitat for the butterflies while re-seeded rangelands without flowers may not (Marrone 1992). The species is always associated with open prairie or ungrazed, reverted pastures, generally in moist tallgrass virgin prairie (Royer and Marrone 1992). Conversion of

prairie to cropland, herbicide or pesticide application, overgrazing, and invasion of introduced plants threaten most remaining habitats (Royer and Marrone 1992).

### ESA Status and Other Organizational Rankings

ESA Status	Conservation Status <sup>1</sup>
ESA (no status)	G3, N3; Nebraska – S3; South Dakota – S3; Forest Service - Sensitive

<sup>1</sup> Definitions - <http://www.natureserve.org/explorer/nsranks.htm>

**Existing Conditions.** In some years, individuals will be abundant and will scatter widely; while in other years, they are scarce (Marrone 1992).

Many regal fritillaries were spotted on Fort Pierre National Grassland during the 1990's; one observation has been recorded in western Buffalo Gap National Grassland (NNF files) (Maps E-48 through E-49).

**Direct, Indirect, and Cumulative Effects.** Application of zinc phosphide-treated oats should have no direct effect. Adults are not likely to be present and larvae should be hibernating when prairie dog rodenticide is applied. Even if the butterflies were present, they would not likely ingest the rodenticide or active ingredients.

Indirectly, the increase in the height and density of vegetation after rodenticides are applied. Later, prairie dogs will not be present to remove nectar-producing forbs and that may have an additional positive influence.

Shooting and related activities should not have a direct or indirect effect on this species, unless enough prairie dogs are shot so that there is a significant increase in vegetation height and density. In that instance, the butterflies may find the habitat more favorable.

Reductions in prairie dog populations may favor some individual butterflies if habitat and weather conditions are just right. However, positive effects probably will not be numerous or widespread. The best likelihood of positive effects helping this butterfly is on Fort Pierre National Grassland, where regal fritillaries are more abundant.

### DETERMINATION OF EFFECT AND RATIONALE FOR THE REGAL FRITILLARY

**Buffalo Gap N.G, Fort Pierre N.G., & Oglala N.G.** The biological determination for regal fritillaries under the preferred alternative is: "*No impact*".

**Rationale:** With the implementation of this alternative, it is predicted that there could be between 30,000 and 41,000 acres of prairie dog colonies on these units by 2012 and it is anticipated that rodenticide will be applied to a range of 7,330 and 9,420 acres of prairie dogs each year (Table 2). Some limited and regulated prairie dog shooting in the Conata Basin ferret reintroduction habitat could be allowed within the half mile boundary management zone. Shooting restrictions or closures will not be considered by the Forest Service in the Smithwick ferret reintroduction area until ferret reintroduction is proposed or scheduled by the U.S. Fish and Wildlife Service.

Application of prairie dog rodenticide should have no direct effect. When the rodenticide is applied, adults are not likely to be present and larvae should be hibernating. Even if the



butterflies were present, they would not likely ingest the poison. Rodenticide treatments to prairie dog colonies could increase vegetation height and density and could result in a greater diversity of nectar-producing forbs. This is most likely to occur on moist, more productive range sites.

## SUMMARY OF DETERMINATIONS OF EFFECTS FOR SENSITIVE SPECIES

**Table 9. Summary Sensitive Species Determinations**

Common Name	Buffalo Gap N.G.	Fort Pierre N.G.	Oglala N.G.
<b>MAMMALS</b>			
Black-tailed prairie dog	MAII	MAII	MAII
Swift fox	MAII	MAII	MAII
<b>BIRDS</b>			
Greater prairie chicken	---	MAII	---
Long-billed curlew	MAII	MAII	MAII
Greater sage grouse	NI	---	---
Northern harrier	MAII	MAII	MAII
Ferruginous hawk	MAII	MAII	MAII
Chestnut-collared longspur	MAII	MAII	MAII
McCown's longspur	---	---	MAII
Short-eared owl	MAII	MAII	MAII
Western burrowing owl	MAII	MAII	MAII
Mountain plover	NI	---	---
Brewer's sparrow	NI	---	NI
Grasshopper sparrow	MAII	MAII	MAII
Trumpeter swan	MAII	MAII	MAII
<b>INSECTS</b>			
Regal fritillary	NI	NI	NI

**NI** - No impact -- where no effect is expected

**BI** - Beneficial impact -- where effects are expected to be beneficial and no negative effects are expected to occur

**MAII** - May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing -- where effects in the project area are not expected to be significant and the species and its habitat will remain well distributed.

**LRLV** - Likely to result in a loss of viability in the Planning Area, or in a trend toward federal listing -- where effects are expected to be detrimental and substantial, and the species and its habitat will not be maintained in sufficient numbers or distribution through time.



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## VIII. MAPS

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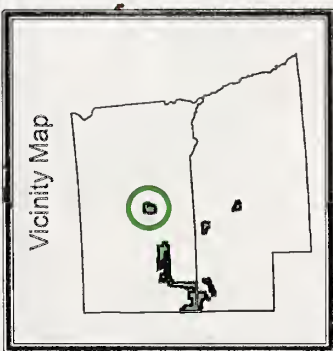
# Current Distribution of Black-Tailed Prairie Dog Colonies Fort Pierre Geographic Area Fort Pierre National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Fort Pierre Geographic Area
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Current Distribution of Black-Tailed Prairie Dog Colonies North & Southeast Geographic Areas East Half Buffalo Gap National Grassland

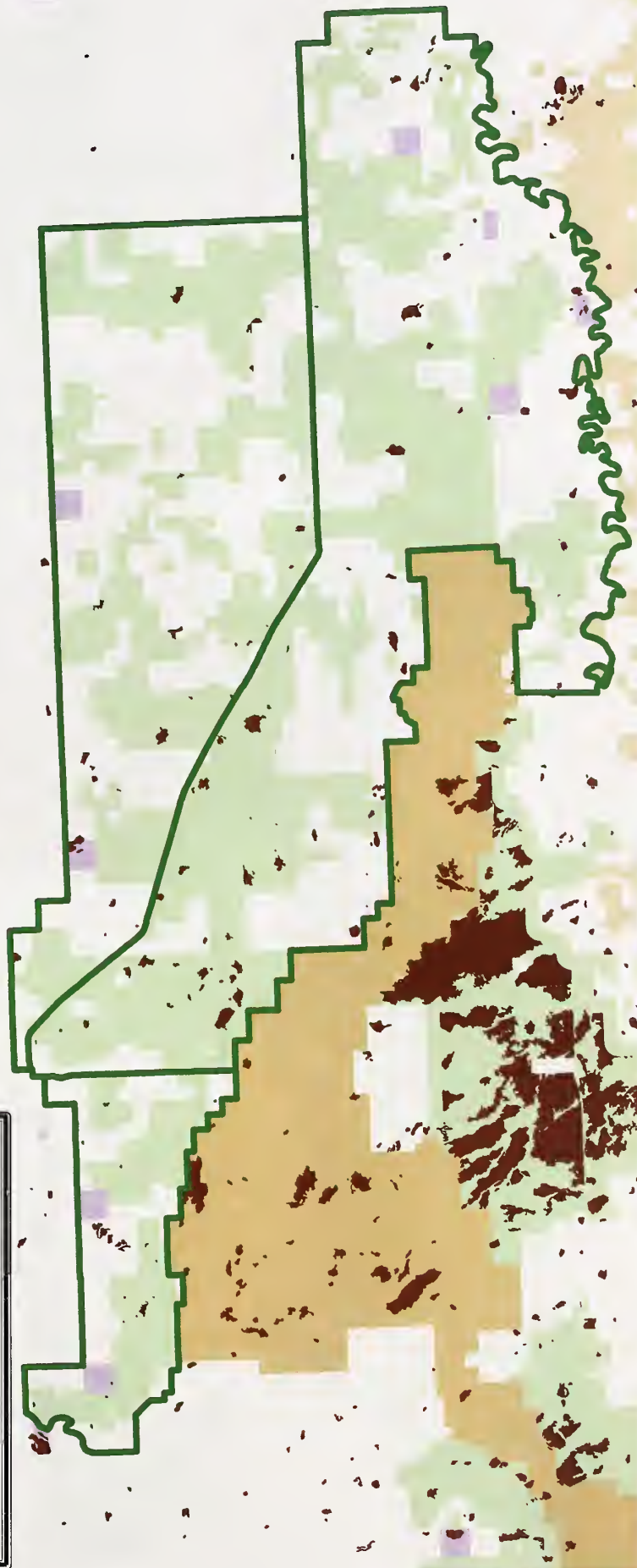


## Legend

- Active Black-tailed Prairie Dog Colony
- Wall North; Wall Southeast
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# Current Distribution of Black-Tailed Prairie Dog Colonies Southwest Geographic Area East Half Buffalo Gap National Grassland



## Legend

Active Black-tailed Prairie Dog Colony

Wall Southwest

Ownership

Bureau of Reclamation

National Forest System Lands

Badlands National Park

Tribal Lands

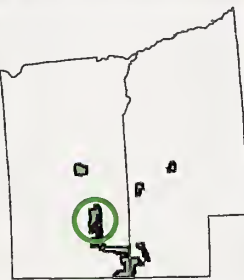
Tribal Lands managed by National Park

State Lands

Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map







# Current Distribution of Black-Tailed Prairie Dog Colonies Northeast Geographic Area West Half Buffalo Gap National Grassland

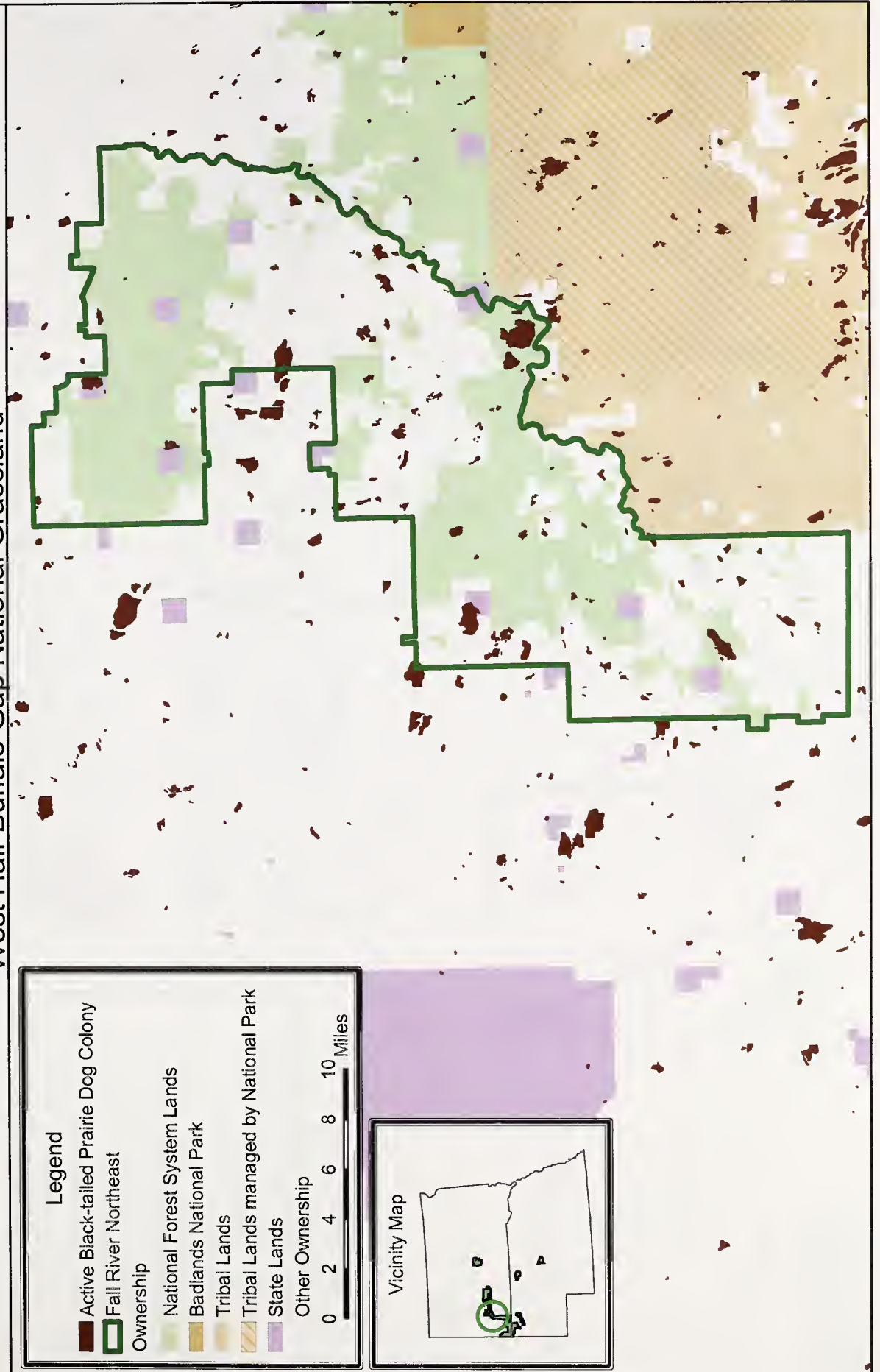


## Legend

- Active Black-tailed Prairie Dog Colony
- Fall River Northeast Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







Current Distribution of Black-Tailed Prairie Dog Colonies  
Southeast Geographic Area  
West Half Buffalo Gap National Grassland



**Legend**

Active Black-tailed Prairie Dog Colony

Fall River Southeast

**Ownership**

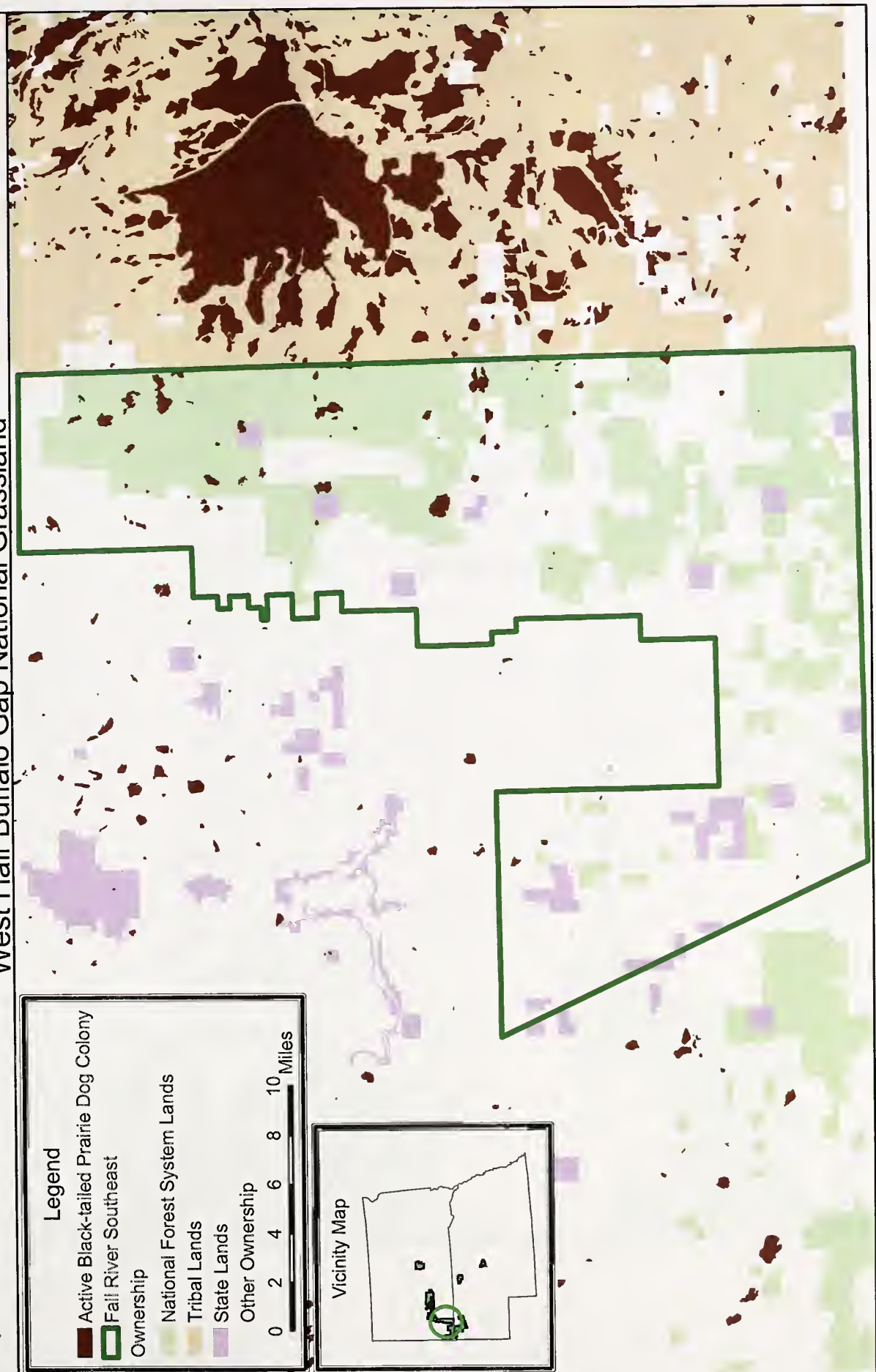
National Forest System Lands

Tribal Lands

State Lands

Other Ownership

0 2 4 6 8 10 Miles









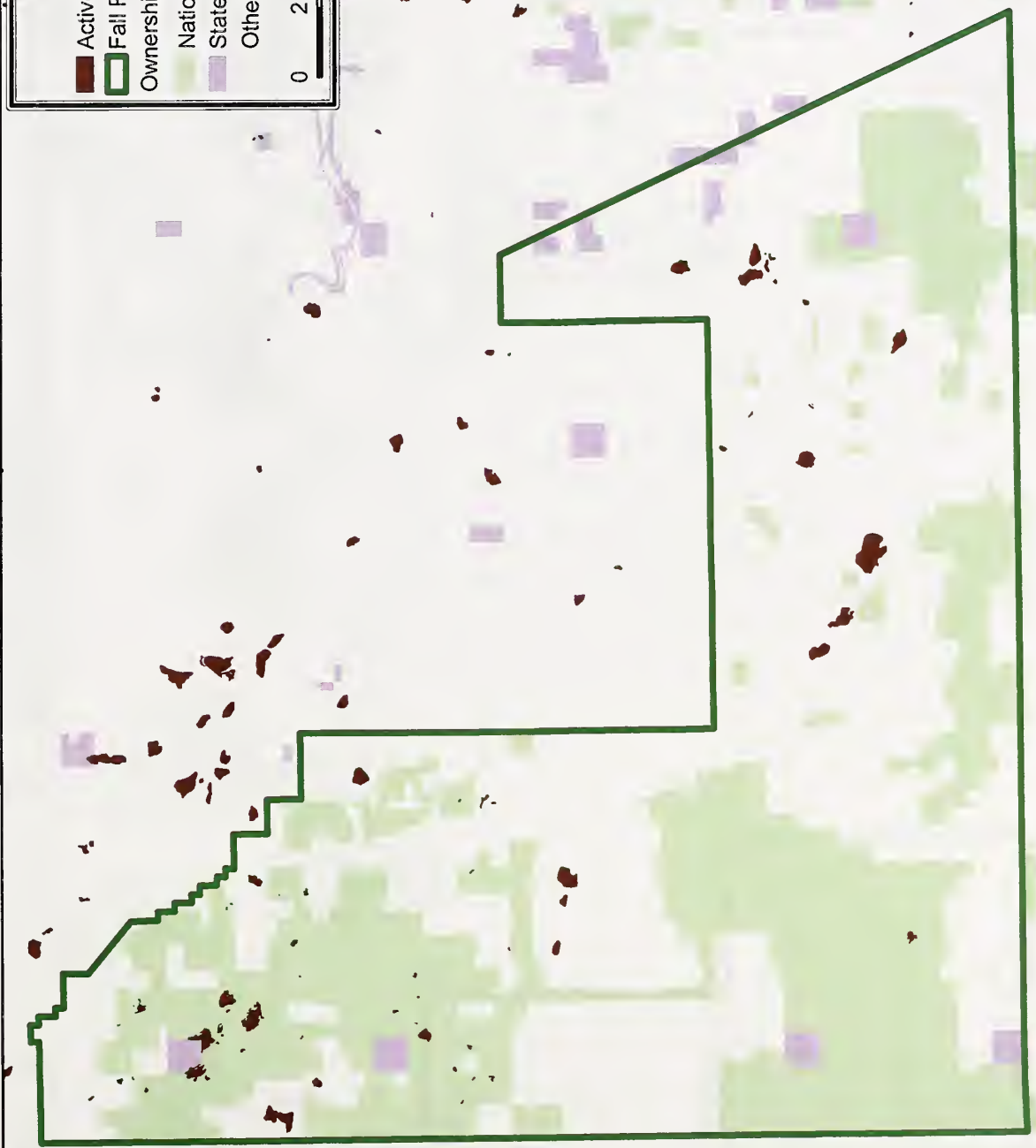
# Current Distribution of Black-Tailed Prairie Dog Colonies West Geographic Area West Half Buffalo Gap National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Fall River West Ownership
- National Forest System Lands
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles





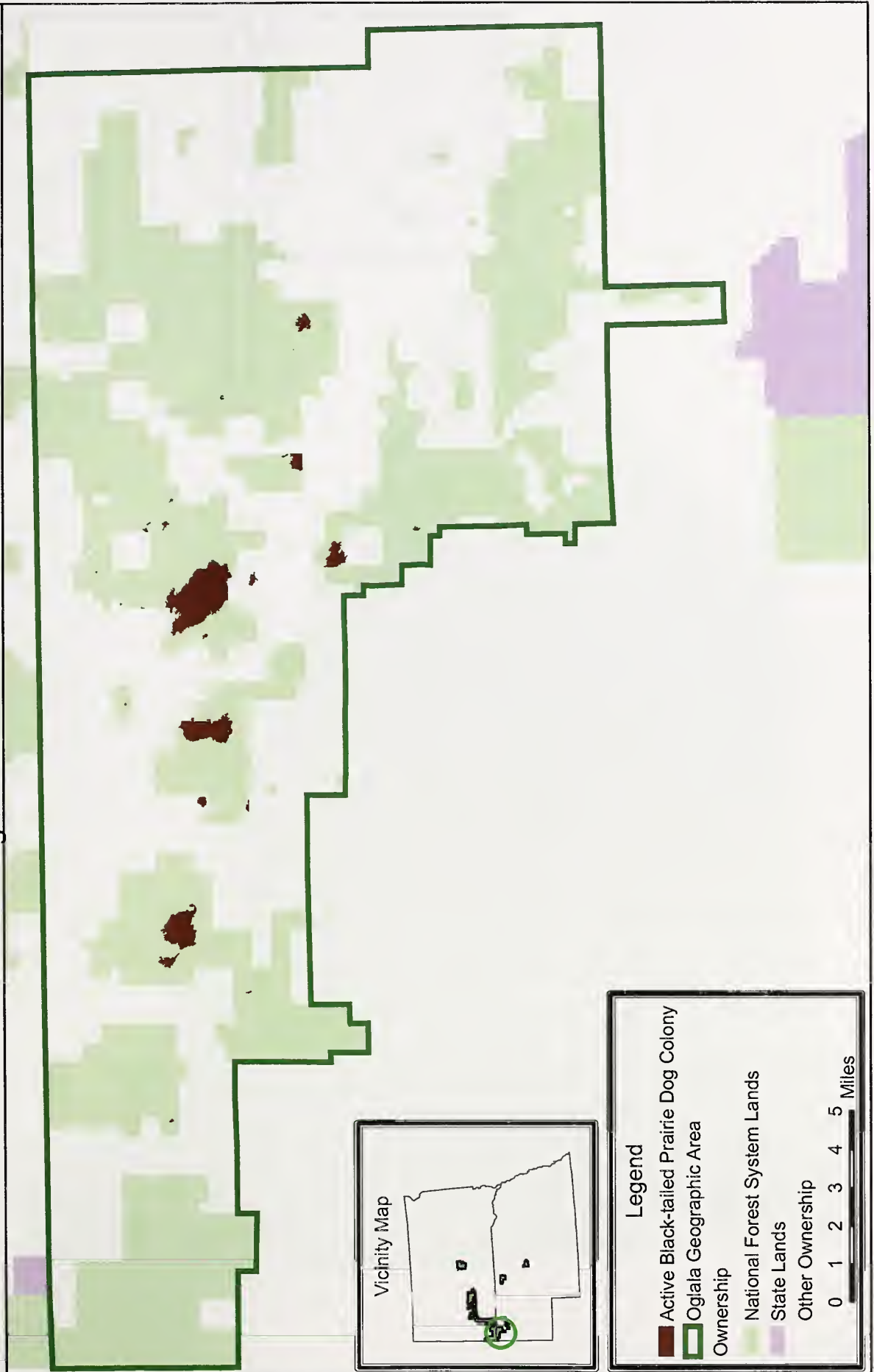




# Current Distribution of Black-Tailed Prairie Dog Colonies

## Oglala Geographic Area

### Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Oglala Geographic Area
- Ownership
  - National Forest System Lands
  - State Lands
  - Other Ownership

0 1 2 3 4 5 Miles



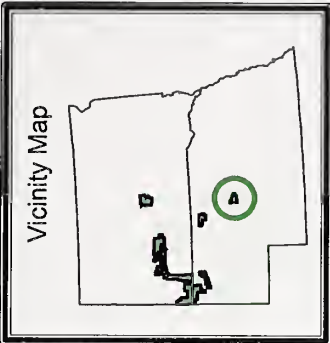
# Current Distribution of Black-Tailed Prairie Dog Colonies Bessey Geographic Area Bessey Ranger District



**Legend**

- Active Black-tailed Prairie Dog Colony
- Bessey Geographic Area
- Ownership
- National Forest System Lands
- Other Ownership

0 1 2 3 4 5 Miles









# Black-footed Ferret Observations East Half Buffalo Gap National Grassland

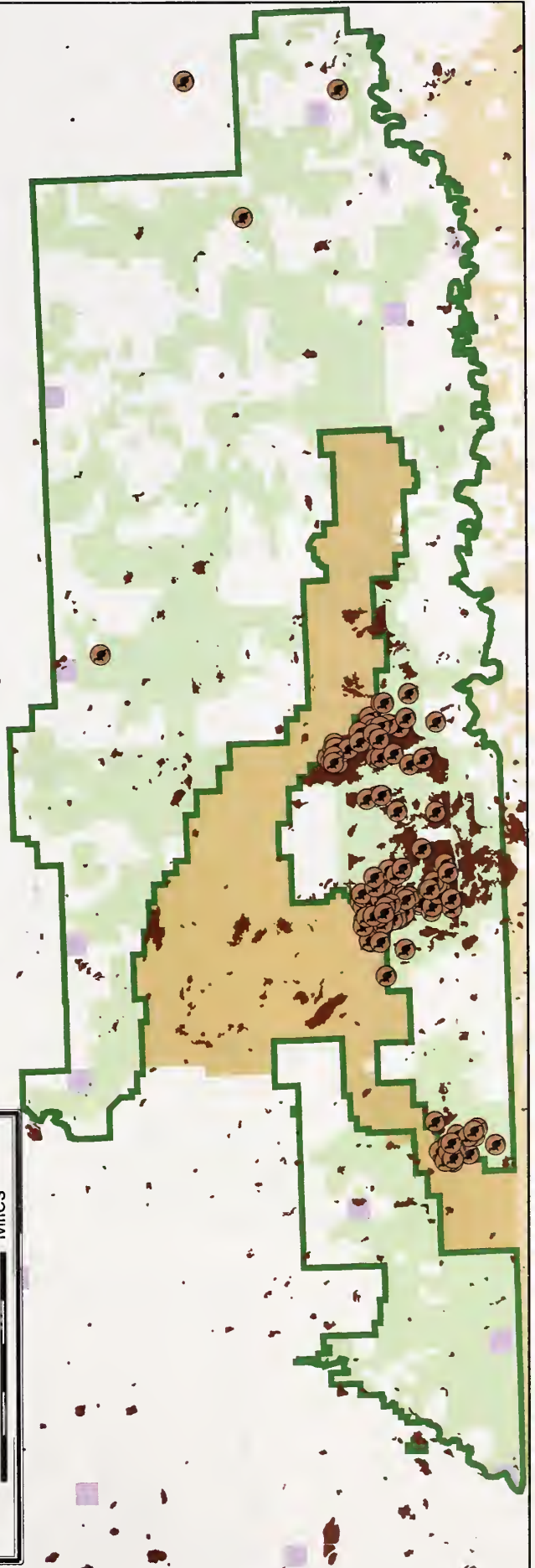


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Black-footed Ferret
- Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# Black-footed Ferret Observations West Half Buffalo Gap National Grassland



## Legend

Active Black-tailed Prairie Dog Colonies

Administrative Boundary

## Wildlife Observations

Black-footed Ferret

Ownership

National Forest System Lands

Badlands National Park

Tribal Lands

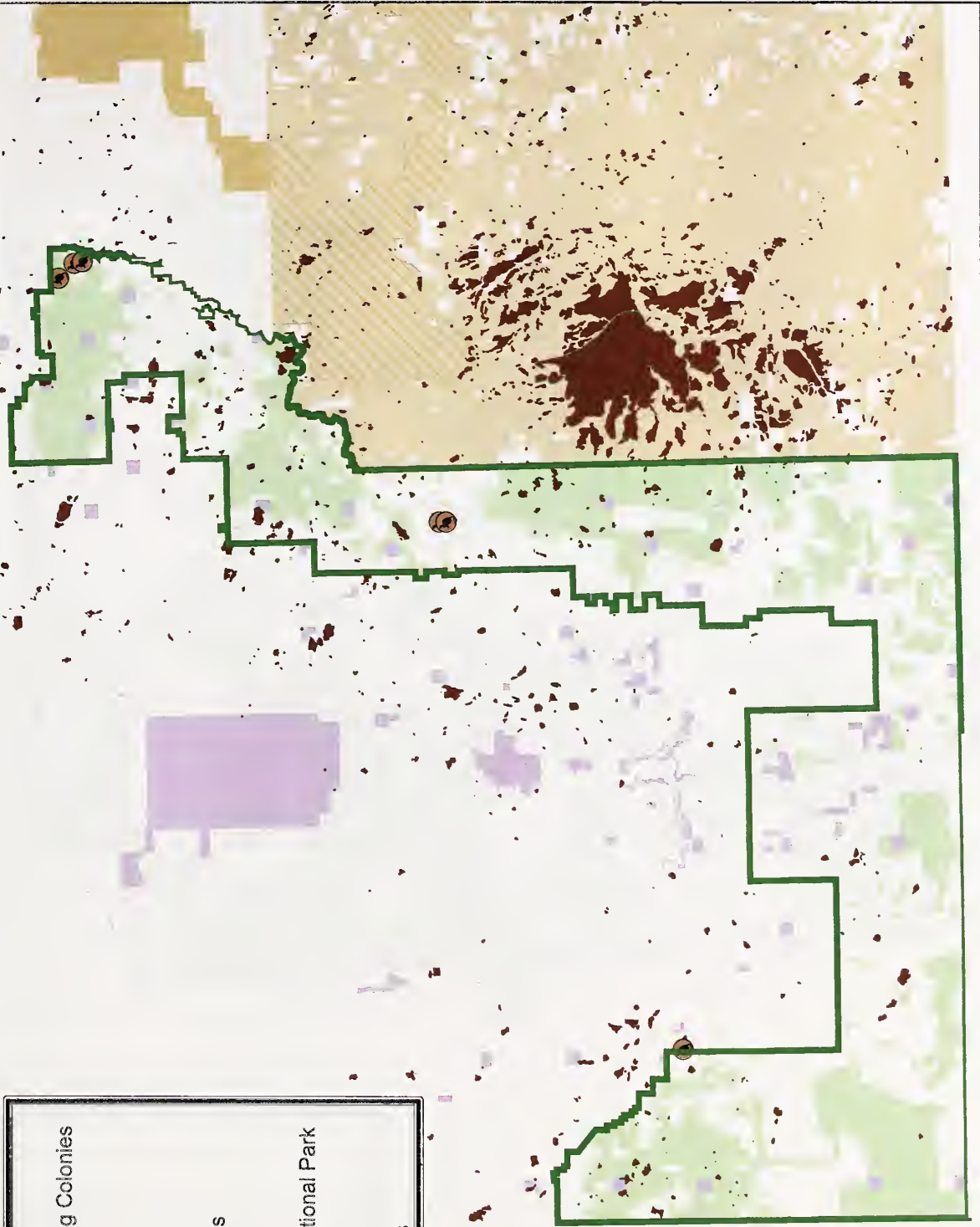
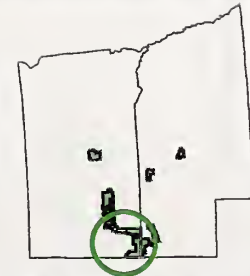
Tribal Lands managed by National Park

State Lands

Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







# Black-footed Ferret Observations Fort Pierre National Grassland



## Legend

- Active Black-tailed Prairie Dog Colony
  - Administrative Boundary
  - Wildlife Observations
  - Black-footed Ferret
  - Ownership
  - National Forest System Lands
  - Tribal Lands
  - State Lands
  - Other Ownership
- 0 1 2 3 4 5 Miles

## Vicinity Map









# Whooping Crane Observations Fort Pierre National Grassland



## Legend

Active Black-tailed Prairie Dog Colony

Wildlife Observations

Whooping Crane

Ownership

National Forest System Lands

Tribal Lands

State Lands

Other Ownership

0 1 2 3 4 5 Miles

Administrative Boundary

## Vicinity Map









# Whooping Crane Observations East Half Buffalo Gap National Grassland

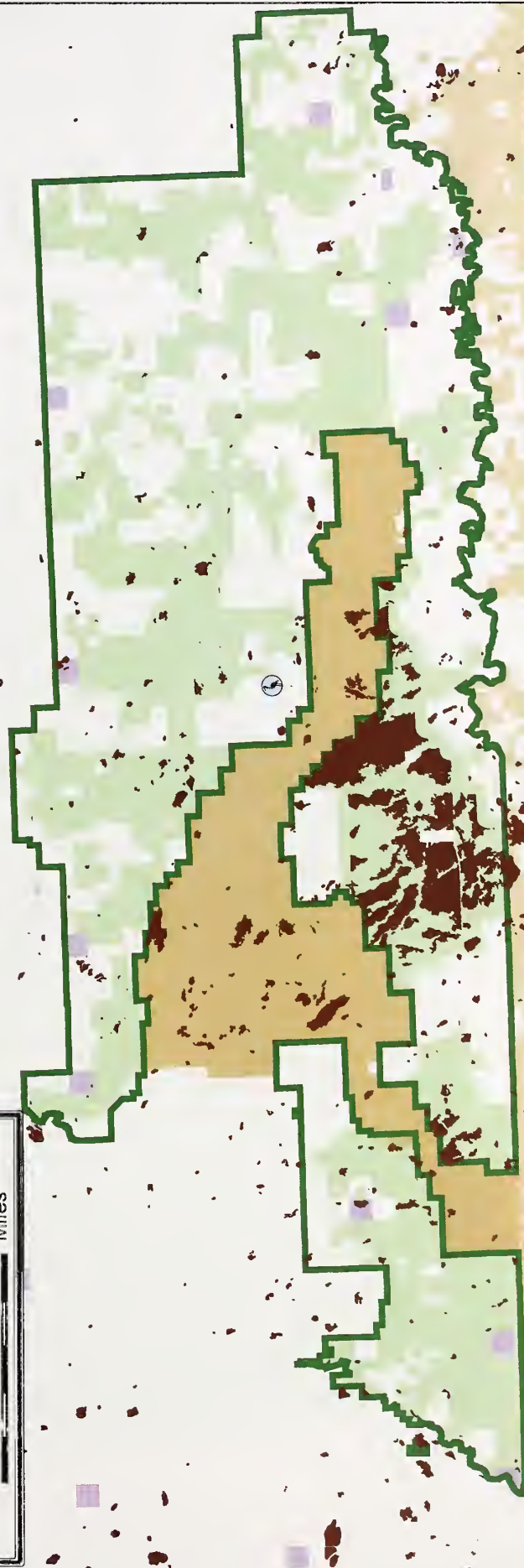


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Whooping Crane
- Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







# Whooping Crane Observations Bessey Ranger District

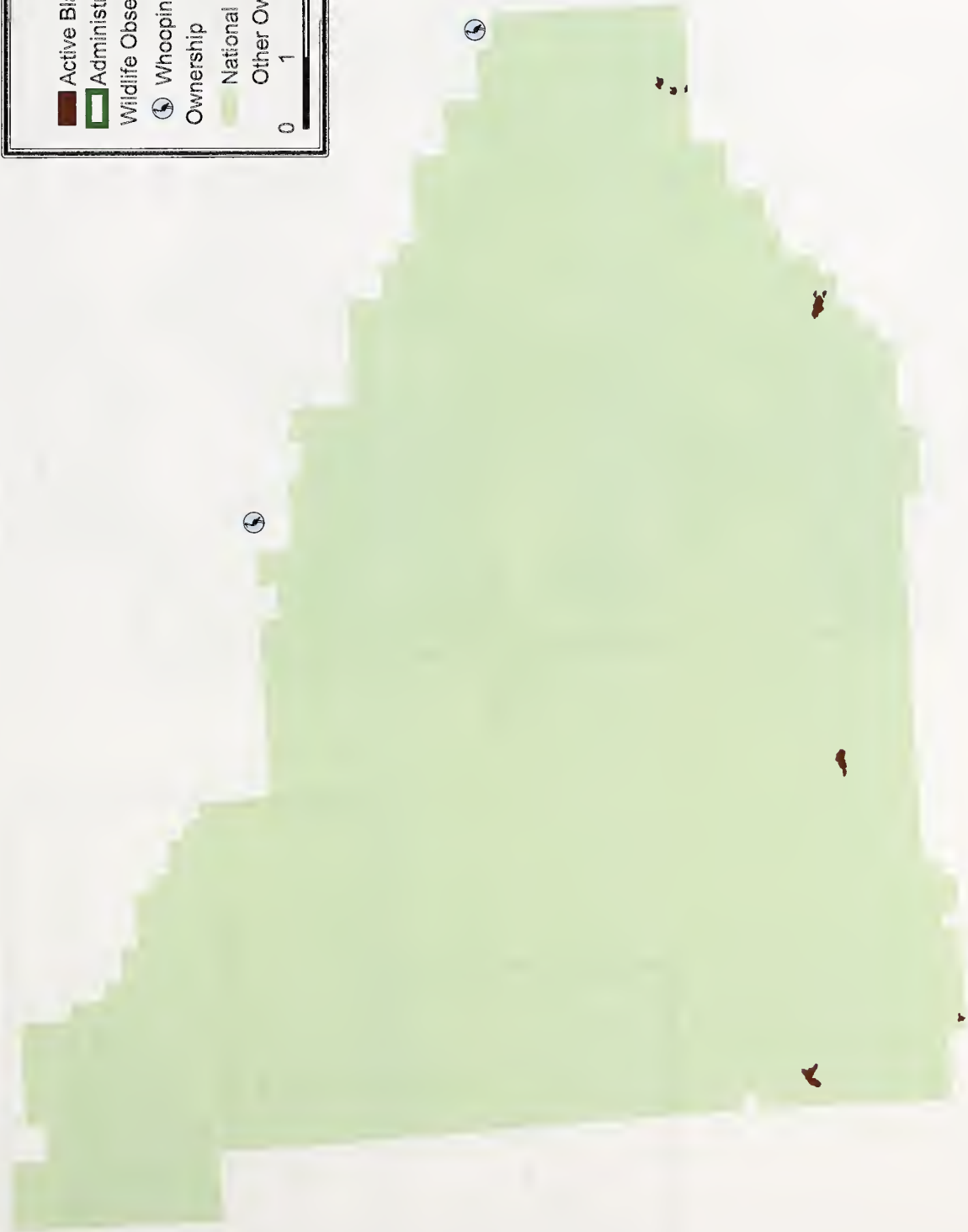


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Whooping Crane Ownership
- National Forest System Lands
- Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map









# Bald Eagle Observations Fort Pierre National Grassland



## Legend

Active Black-tailed Prairie Dog Colony

Administrative Boundary

Wildlife Observations

Bald Eagle

Ownership

National Forest System Lands

Tribal Lands

State Lands

Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map









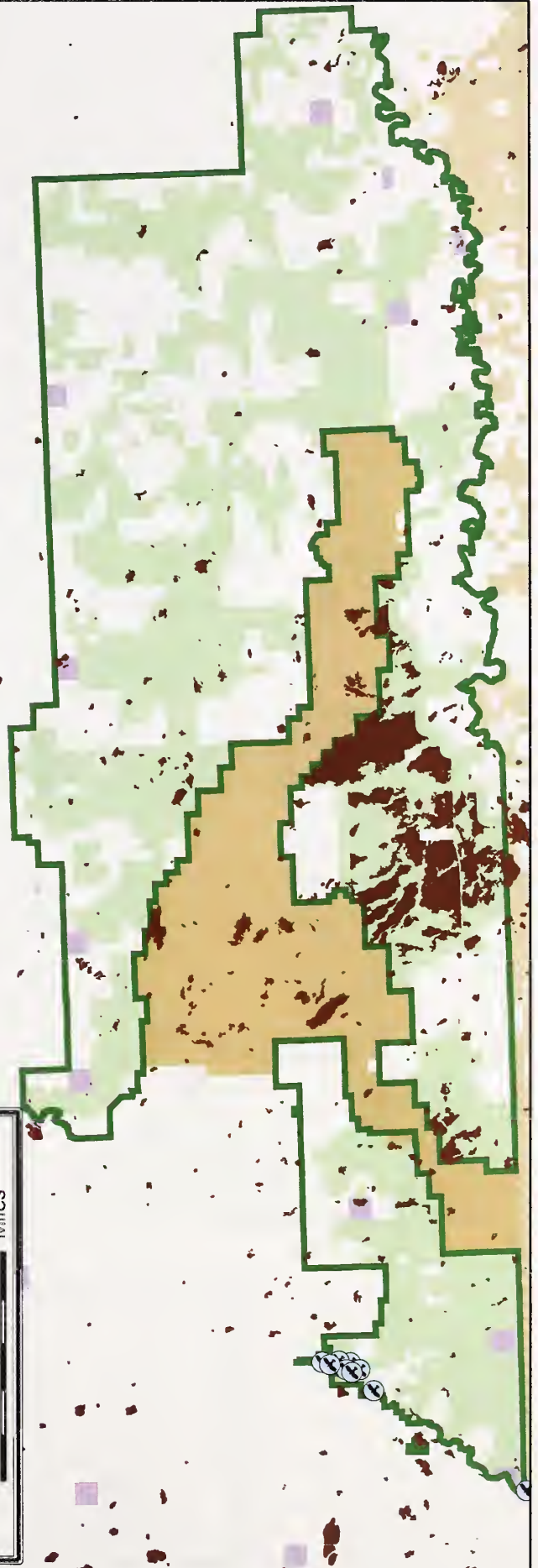
# Bald Eagle Observations East Half Buffalo Gap National Grassland

## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Bald Eagle
- Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map





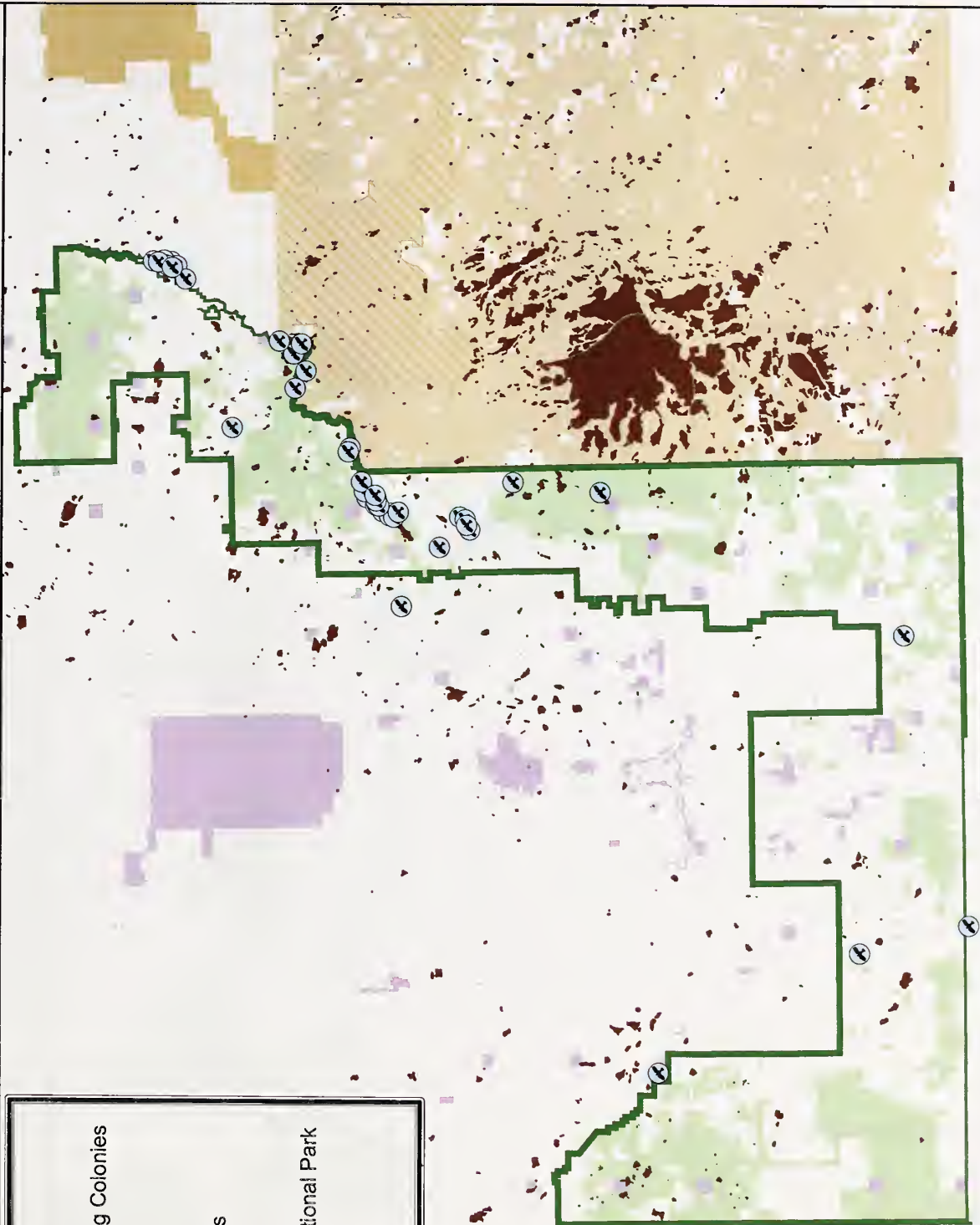
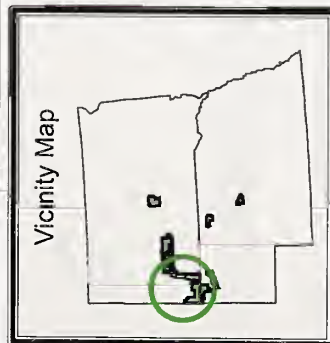
# Bald Eagle Observations West Half Buffalo Gap National Grassland



**Legend**

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Bald Eagle
- Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

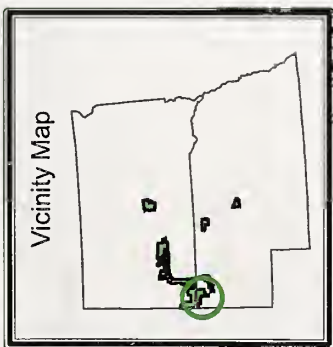
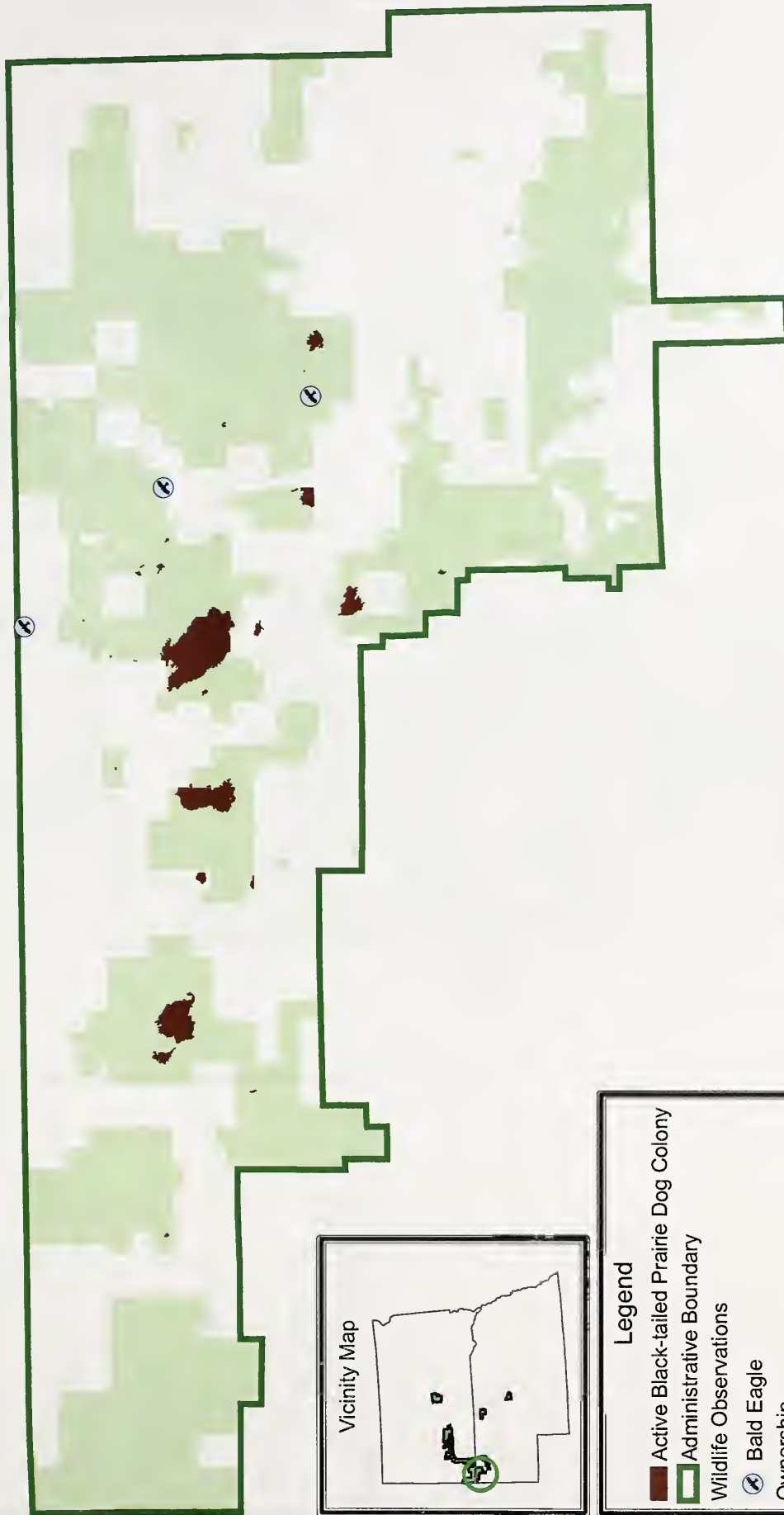








# Bald Eagle Observations Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Bald Eagle
- Ownership
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Swift Fox Observations Fort Pierre National Grassland

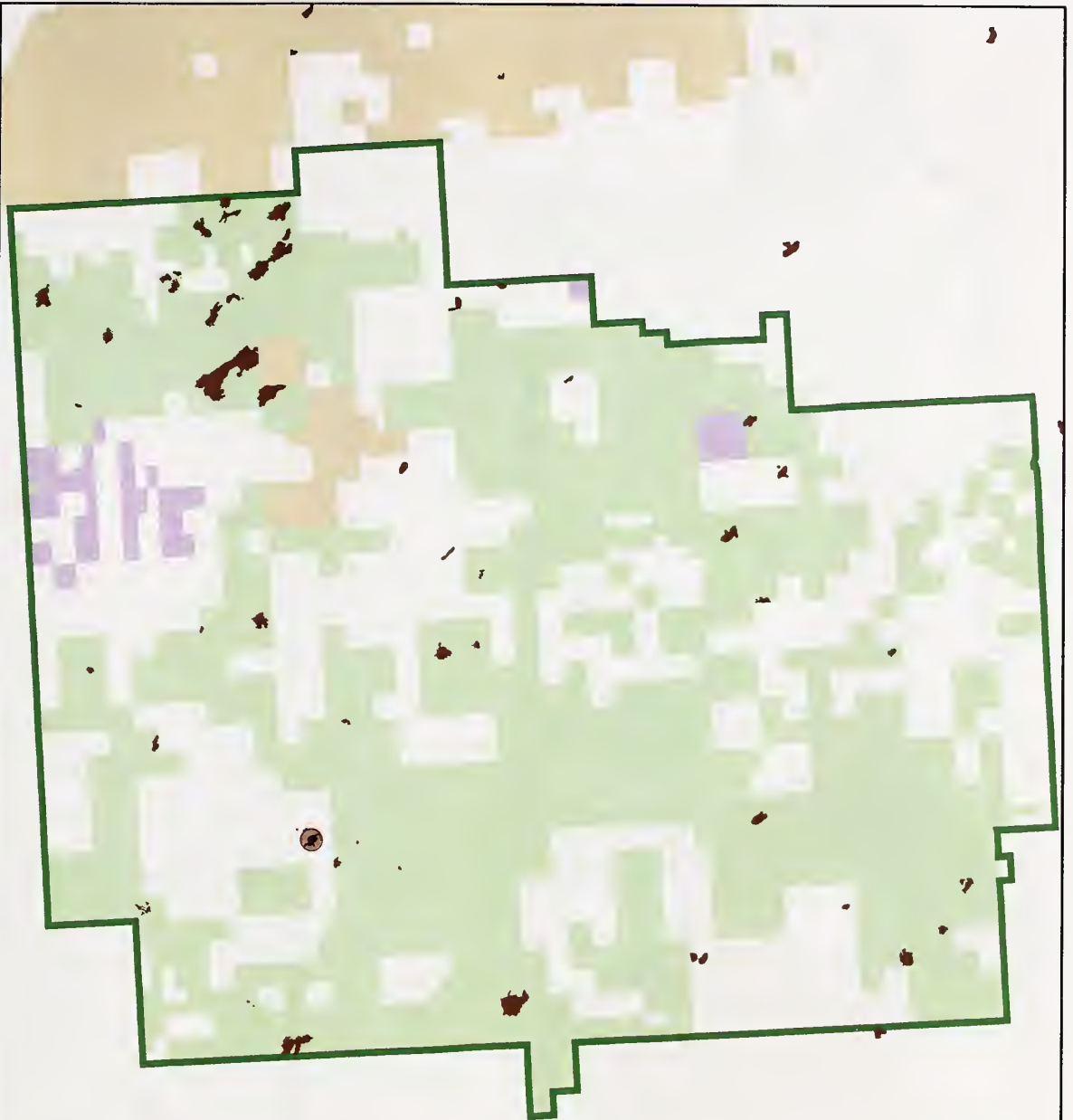


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Swift Fox
- Ownership
  - National Forest System Lands
  - Tribal Lands
  - State Lands
  - Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map







# Swift Fox Observations East Half Buffalo Gap National Grassland

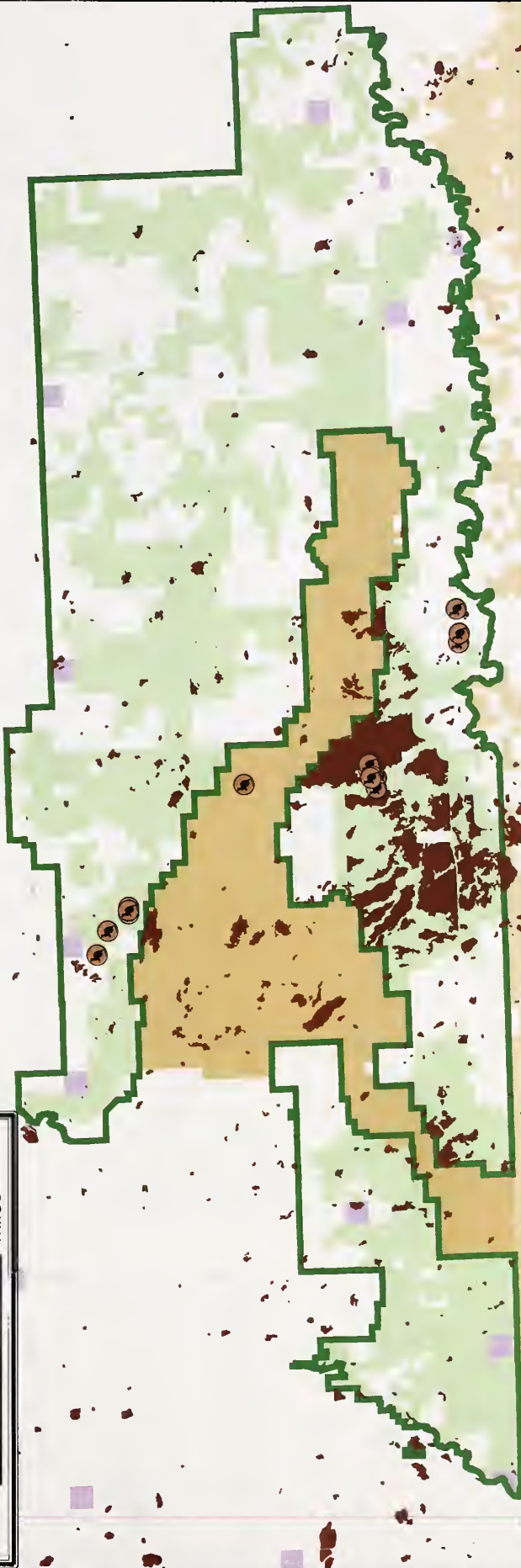


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Swift Fox
- Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# Swift Fox Observations West Half Buffalo Gap National Grassland

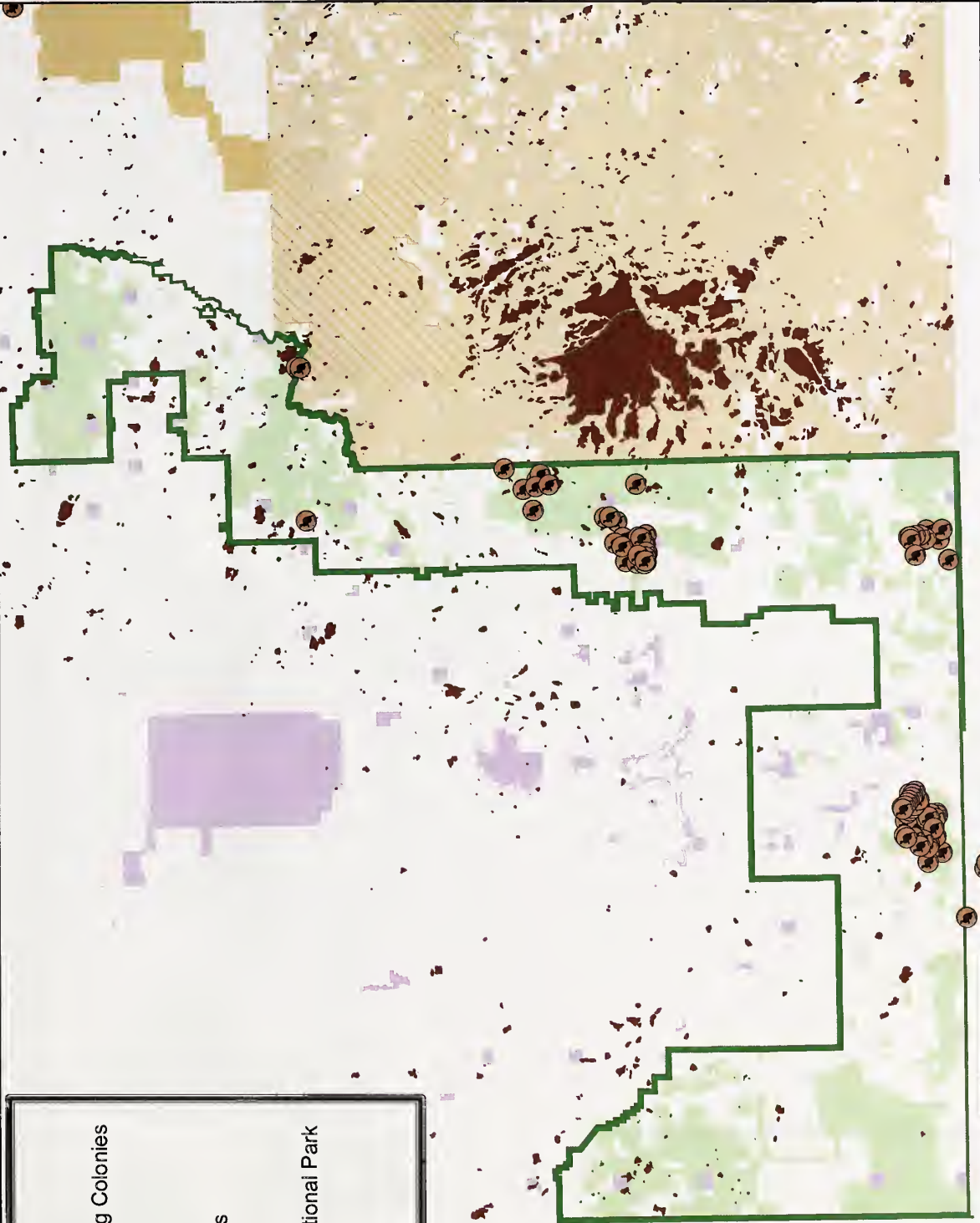
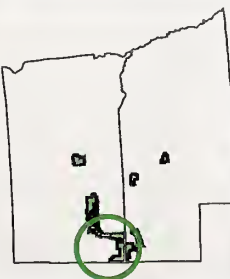


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Swift Fox
- Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map

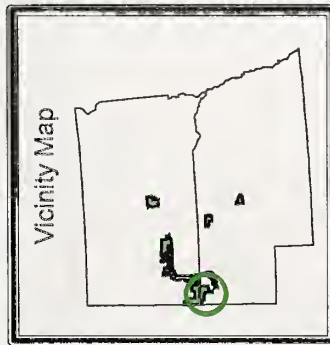
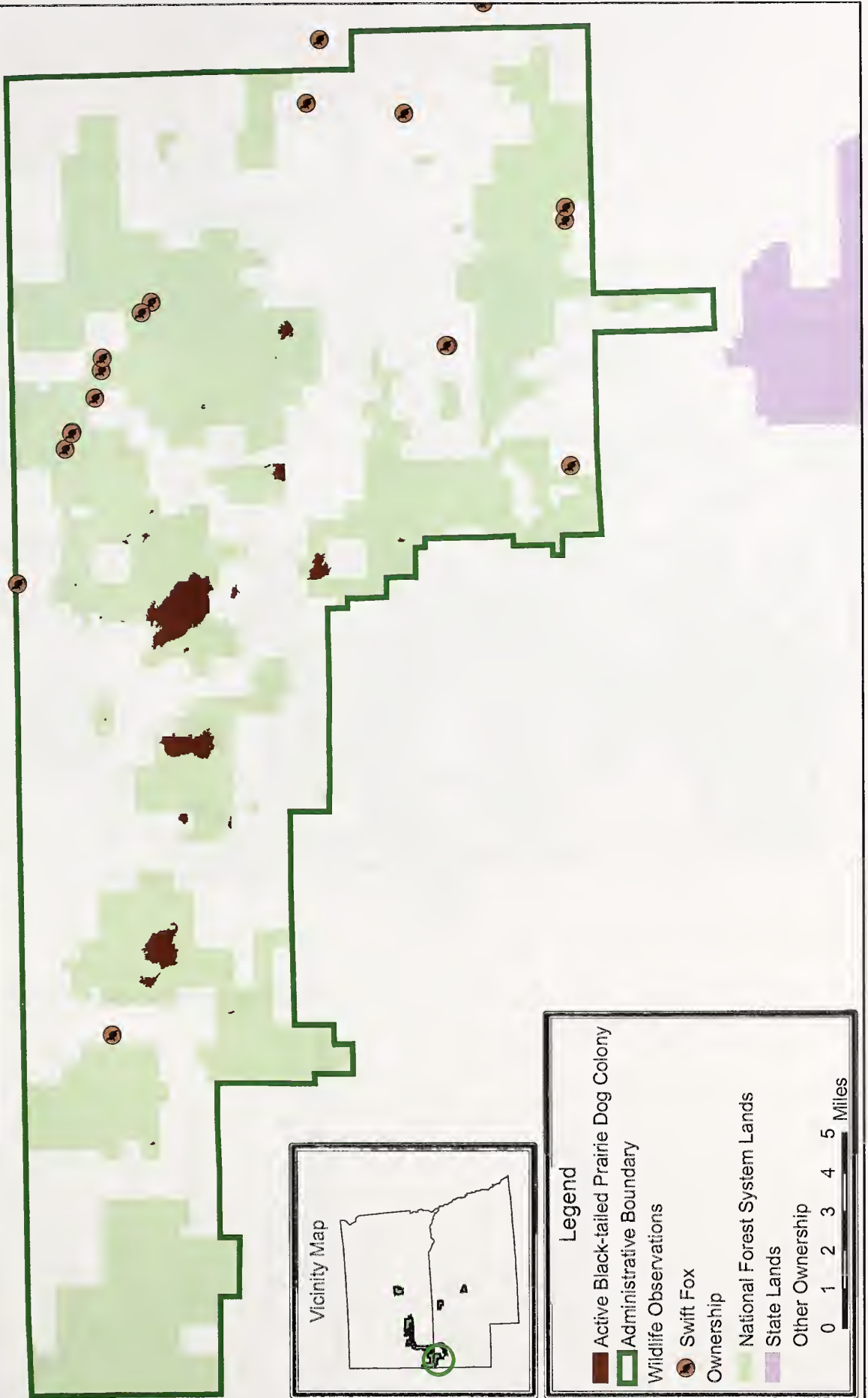








# Swift Fox Observations Oglala National Grassland



**Legend**

Active Black-tailed Prairie Dog Colony

Administrative Boundary

Wildlife Observations

Swift Fox Ownership

National Forest System Lands

State Lands

Other Ownership

0 1 2 3 4 5 Miles





# Greater Prairie Chicken Observations Fort Pierre National Grassland

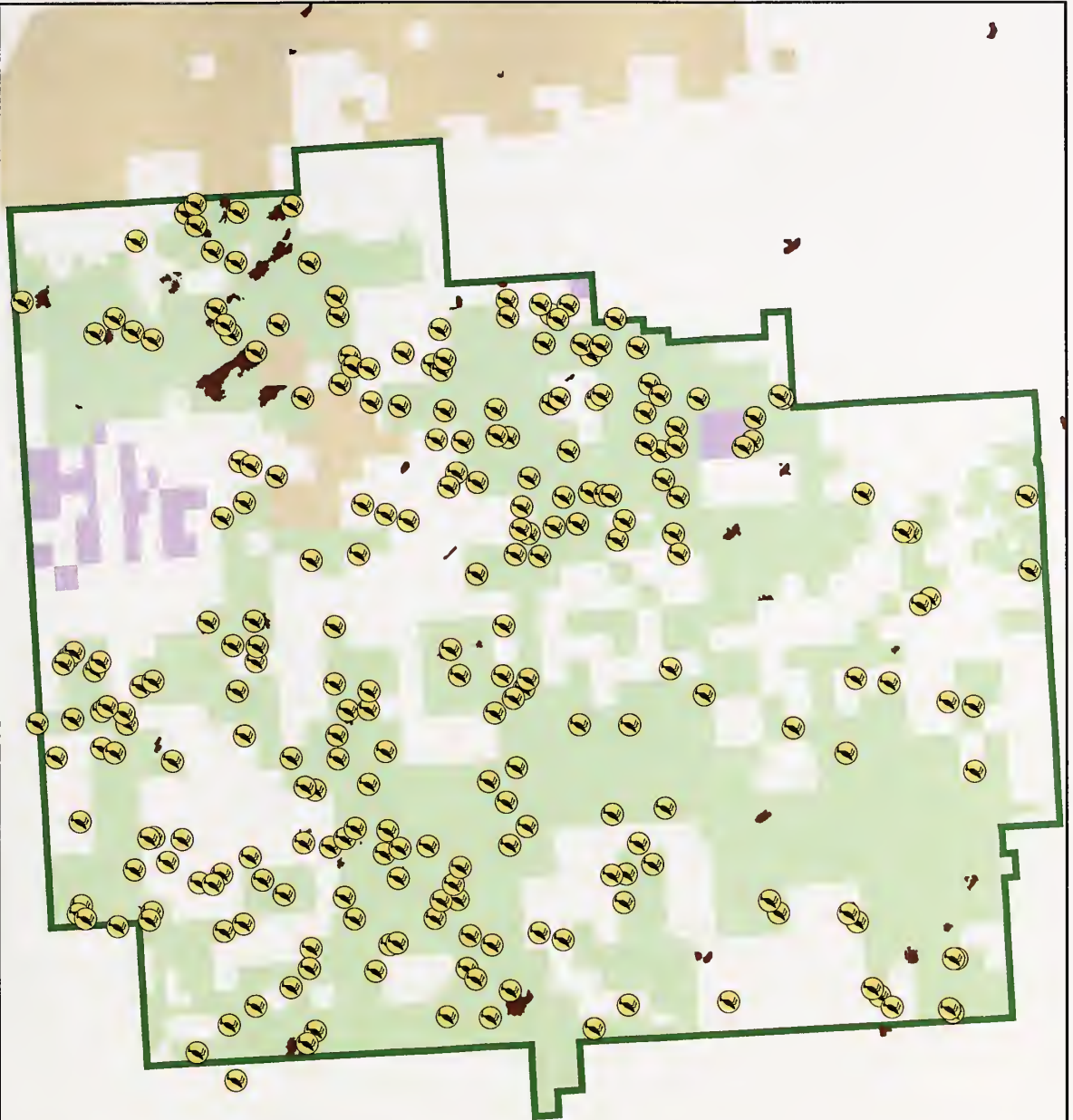


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Greater Prairie Chicken
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map









# Long-Billed Curlew Observations Fort Pierre National Grassland



## Legend

Active Black-tailed Prairie Dog Colony

Administrative Boundary

Wildlife Observations

Long-billed Curlew

Ownership

National Forest System Lands

Tribal Lands

State Lands

Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map





# Long-Term National Operations Developmental and Long-Term National Operations



1. The first part of the report is a summary of the current situation. It includes a description of the current situation, a description of the current situation, and a description of the current situation.

2. The second part of the report is a description of the current situation. It includes a description of the current situation, a description of the current situation, and a description of the current situation.

3. The third part of the report is a description of the current situation. It includes a description of the current situation, a description of the current situation, and a description of the current situation.

4. The fourth part of the report is a description of the current situation. It includes a description of the current situation, a description of the current situation, and a description of the current situation.

5. The fifth part of the report is a description of the current situation. It includes a description of the current situation, a description of the current situation, and a description of the current situation.





# Long-Billed Curlew Observations East Half Buffalo Gap National Grassland



## Legend

Active Black-tailed Prairie Dog Colony

Administrative Boundary

Wildlife Observations

Long-billed Curlew

Ownership

Bureau of Reclamation

National Forest System Lands

Badlands National Park

Tribal Lands

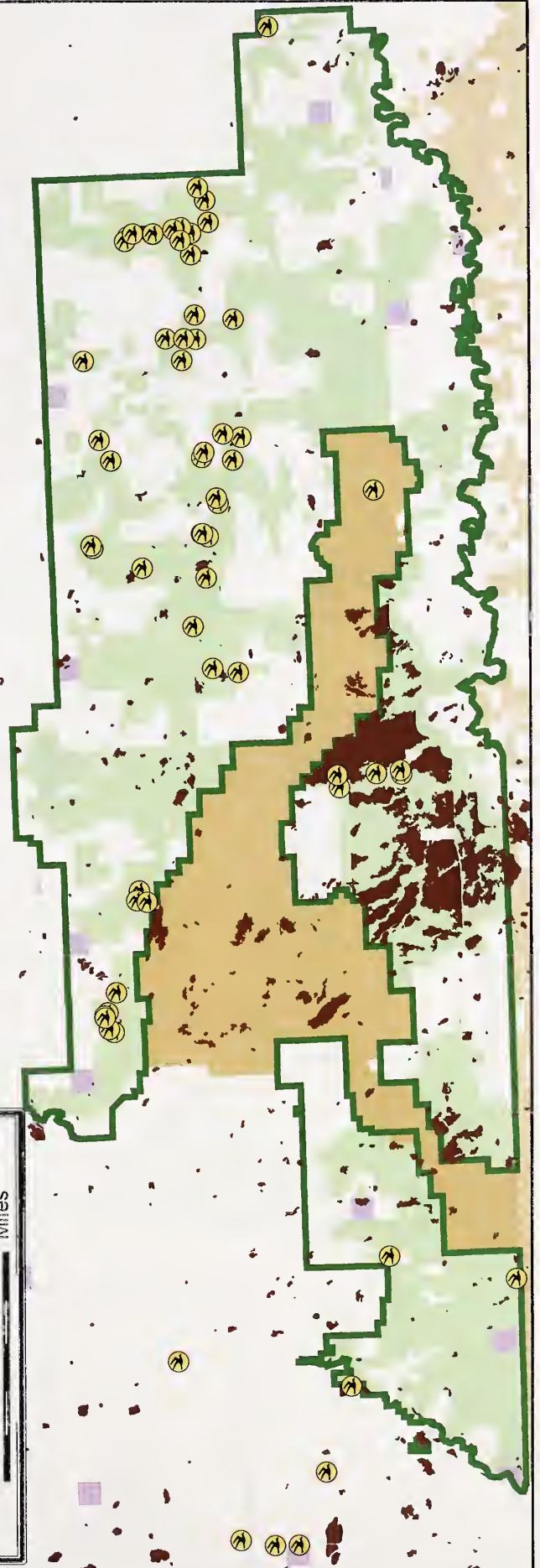
Tribal Lands managed by National Park

State Lands

Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







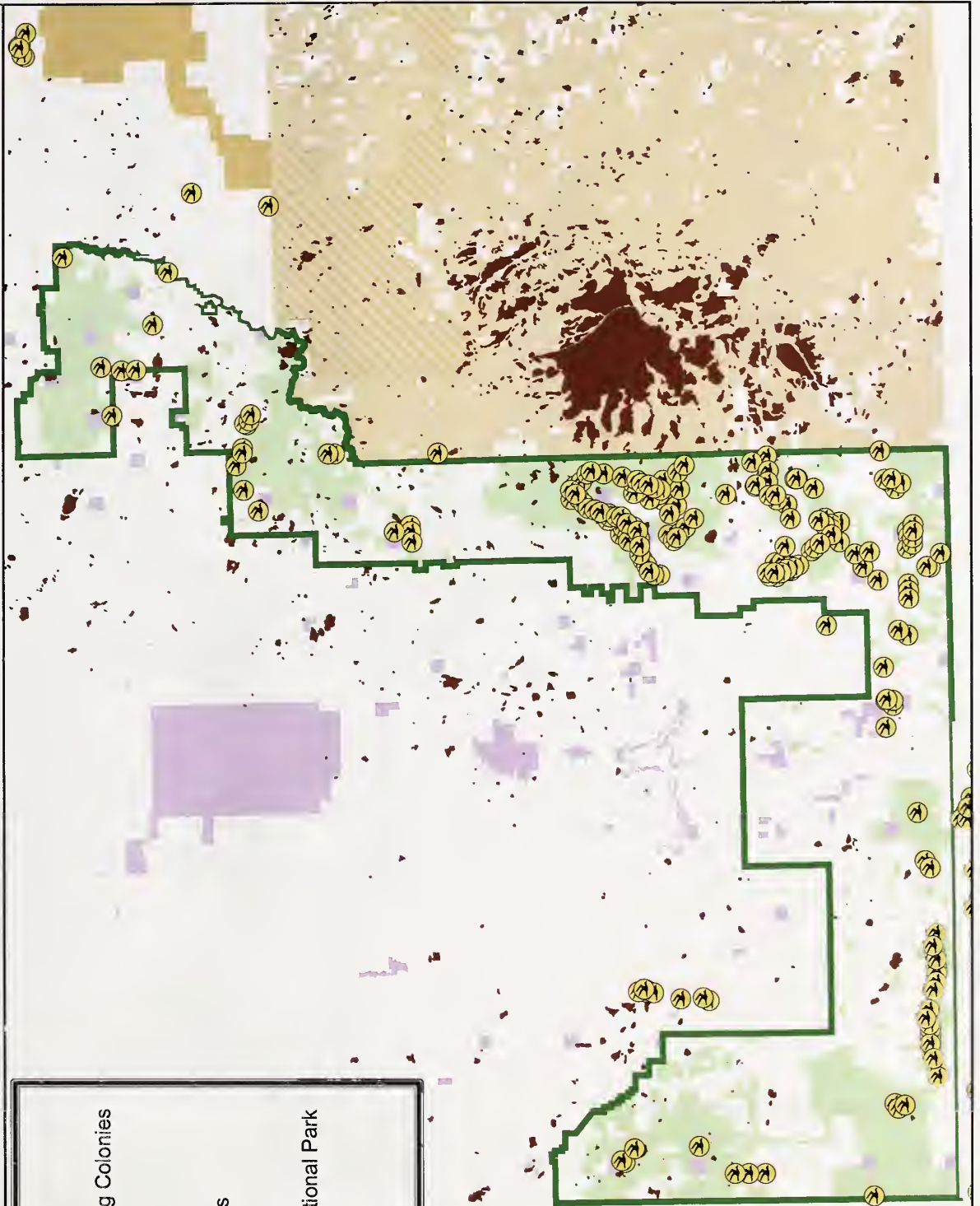
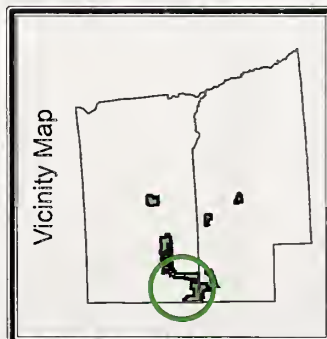
# Long-Billed Curlew Observations West Half Buffalo Gap National Grassland



**Legend**

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Long-billed Curlew
- Ownership**
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

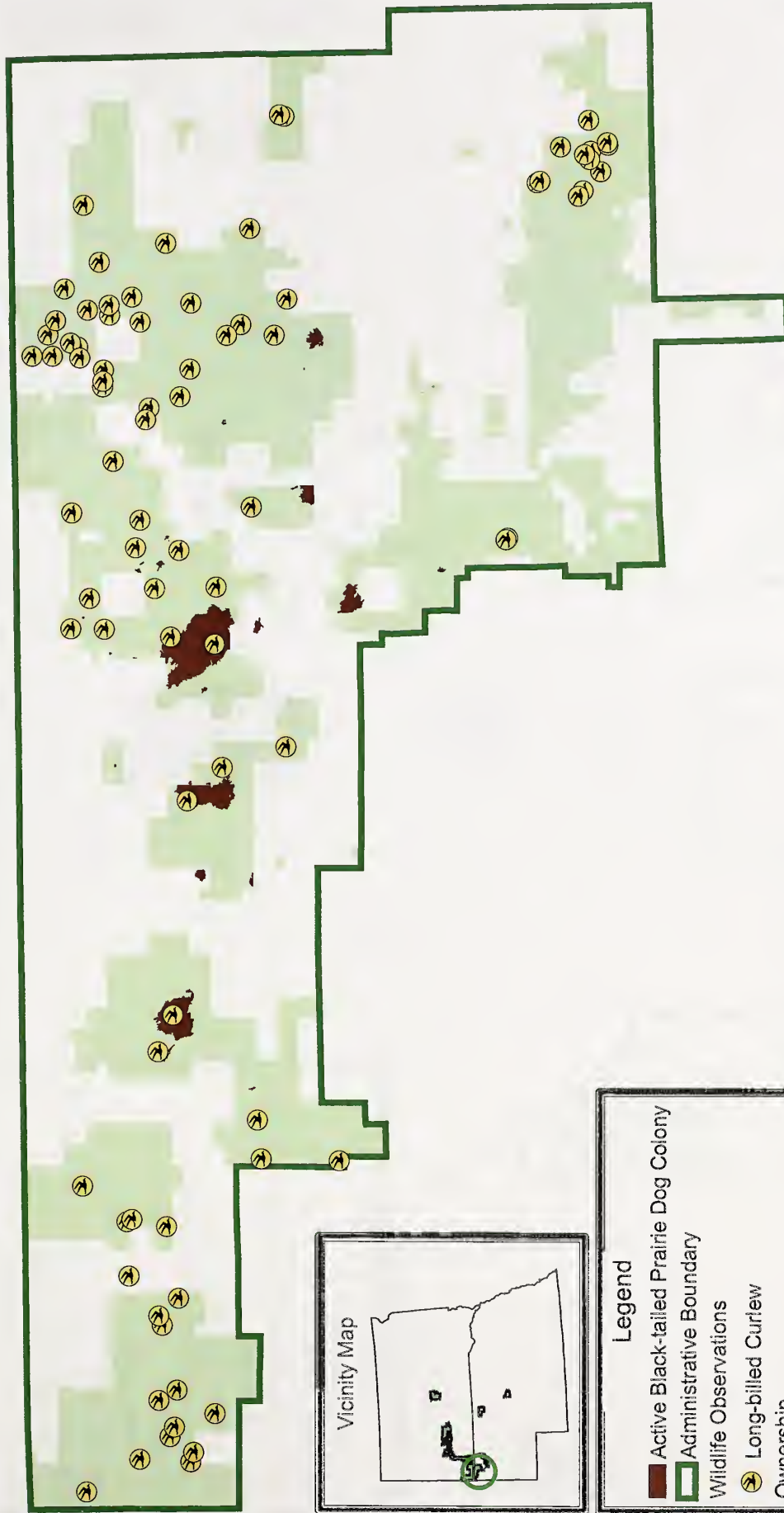








# Long-Billed Curlew Observations Oglala National Grassland



Vicinity Map

## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Long-billed Curlew
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Greater Sage Grouse Observations West Half Buffalo Gap National Grassland

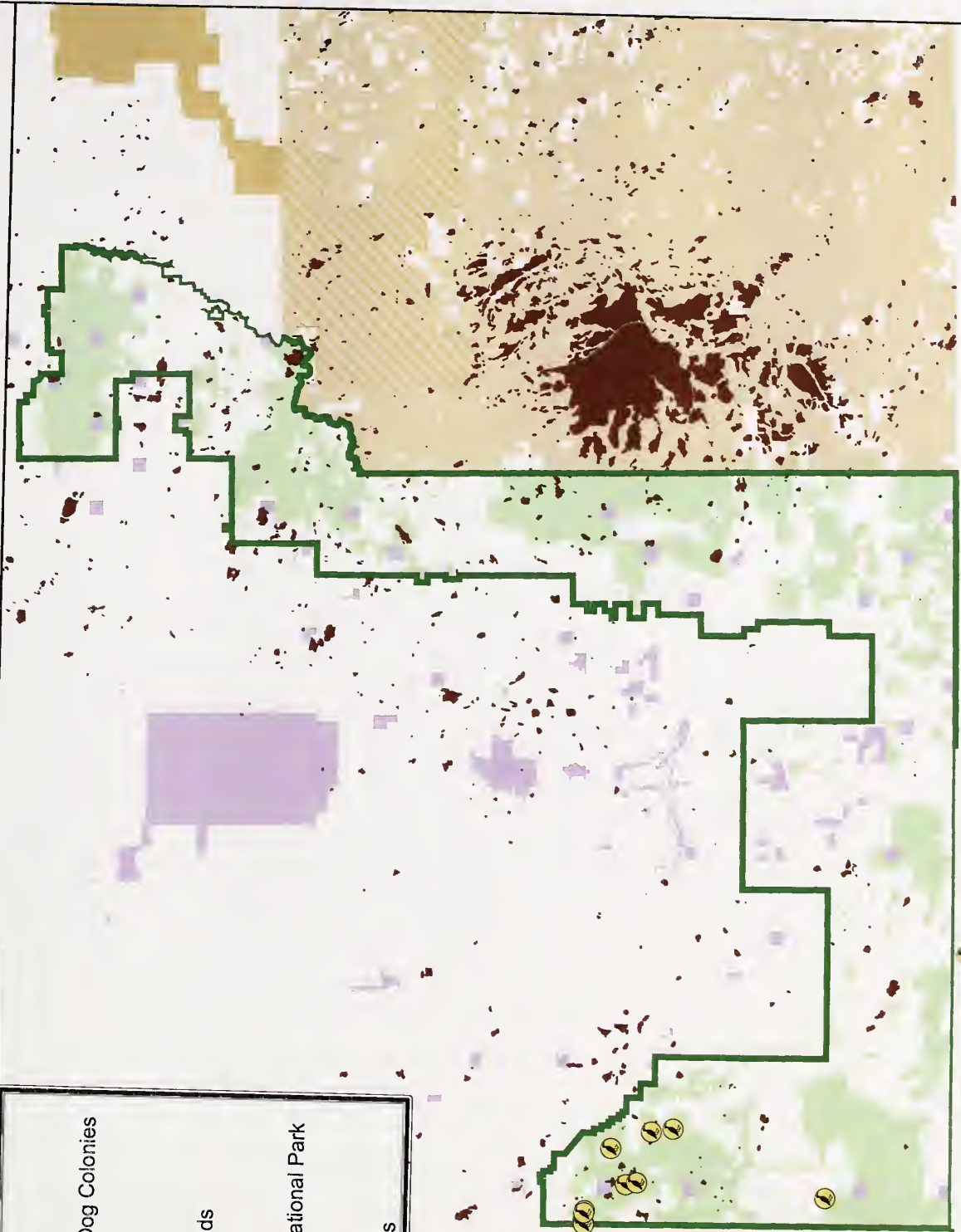


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Sage Grouse
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands

Other Ownership  
0 2 4 6 8 10 Miles

## Vicinity Map







# Northern Harrier Observations West Half Buffalo Gap National Grassland

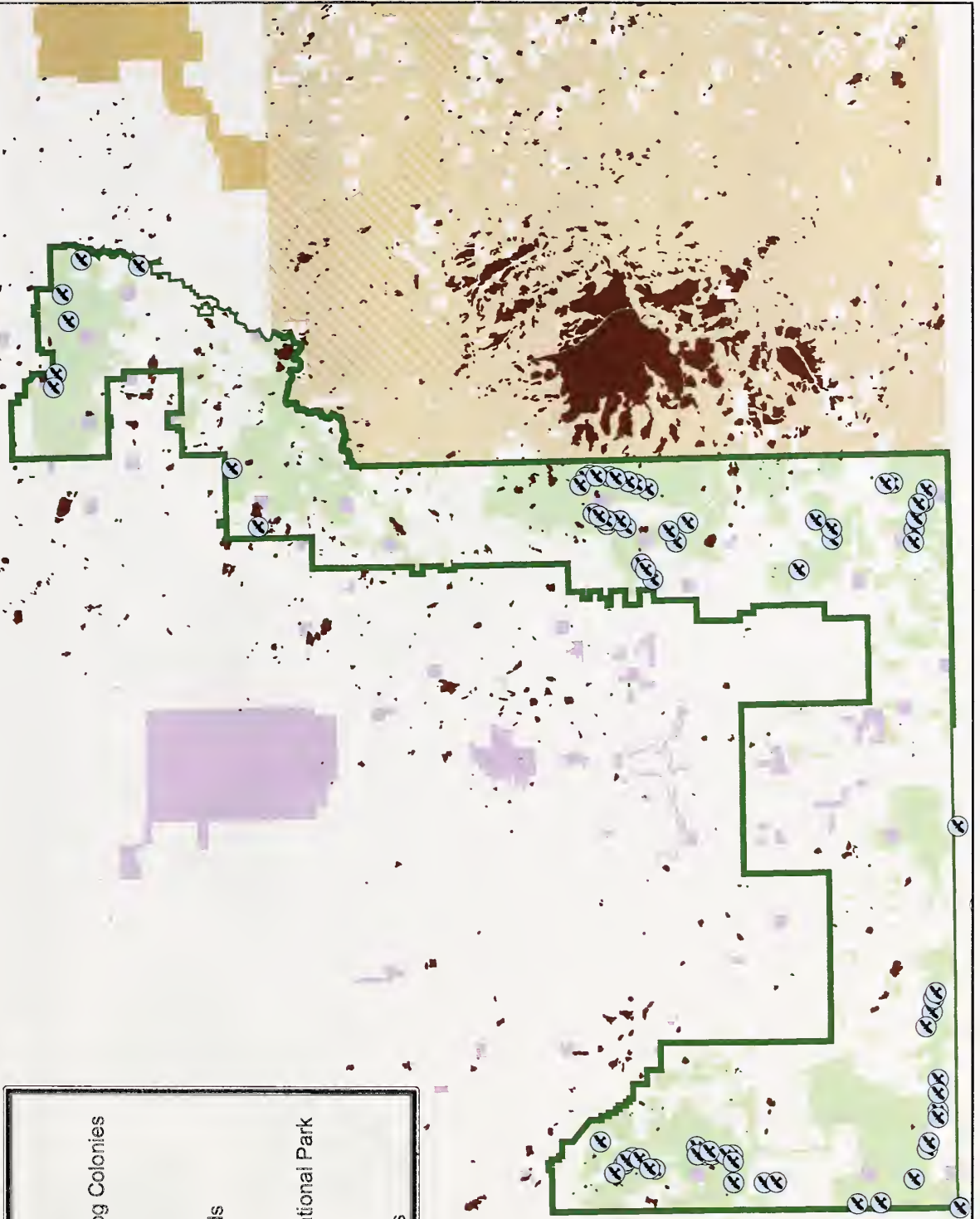
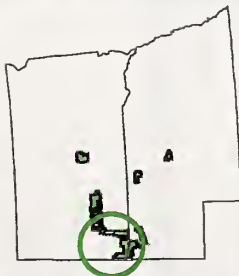


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Northern Harrier
- Owenship
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands

Other Ownership  
0 2 4 6 8 10 Miles

## Vicinity Map

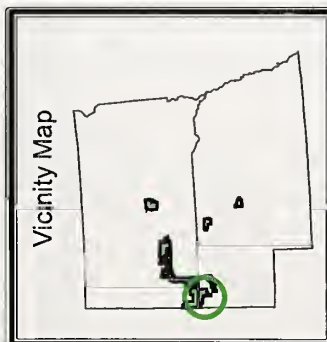
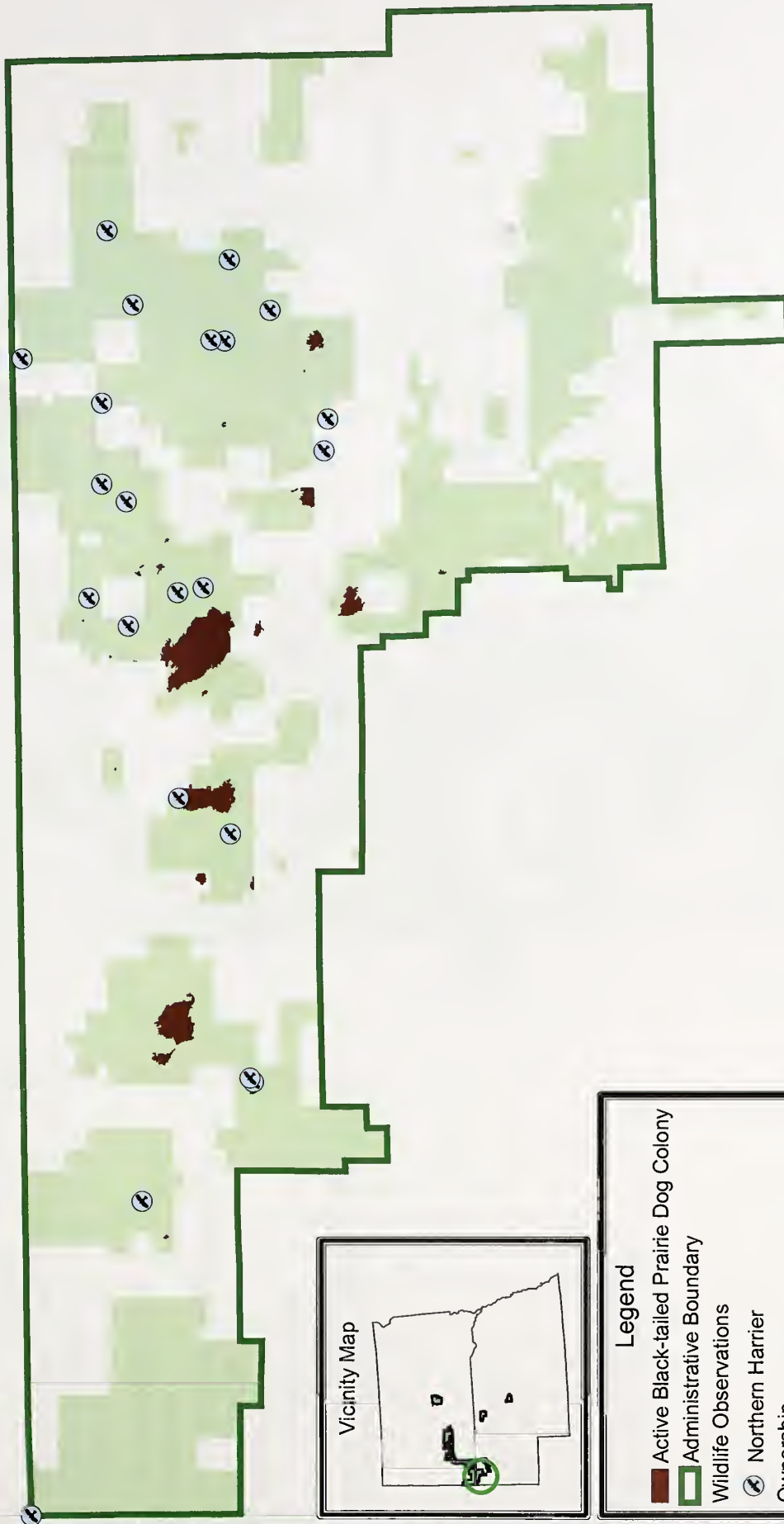








# Northern Harrier Observations Oglala National Grassland



## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Northern Harrier
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Ferruginous Hawk Observations Fort Pierre National Grassland

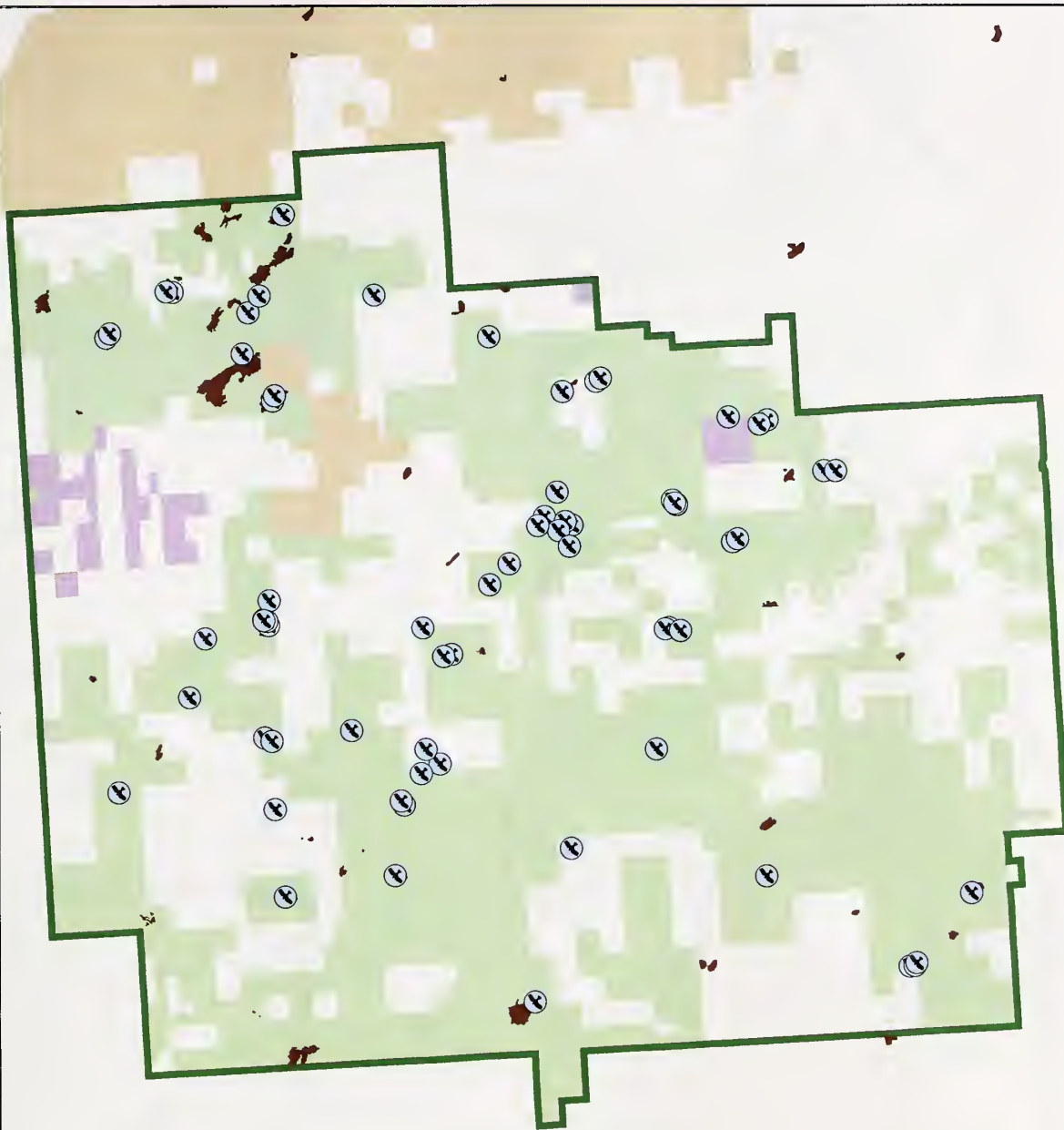


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Ferruginous Hawk Observations
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map







# Ferruginous Hawk Observations East Half Buffalo Gap National Grassland

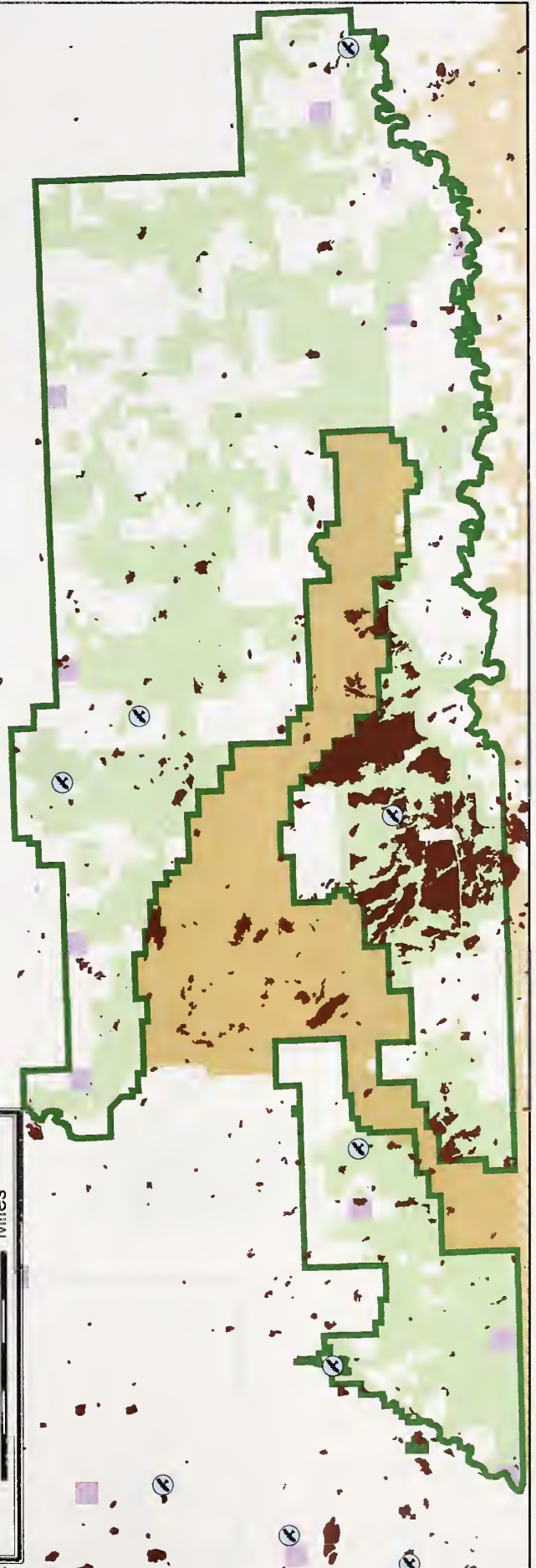


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Ferruginous Hawk Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









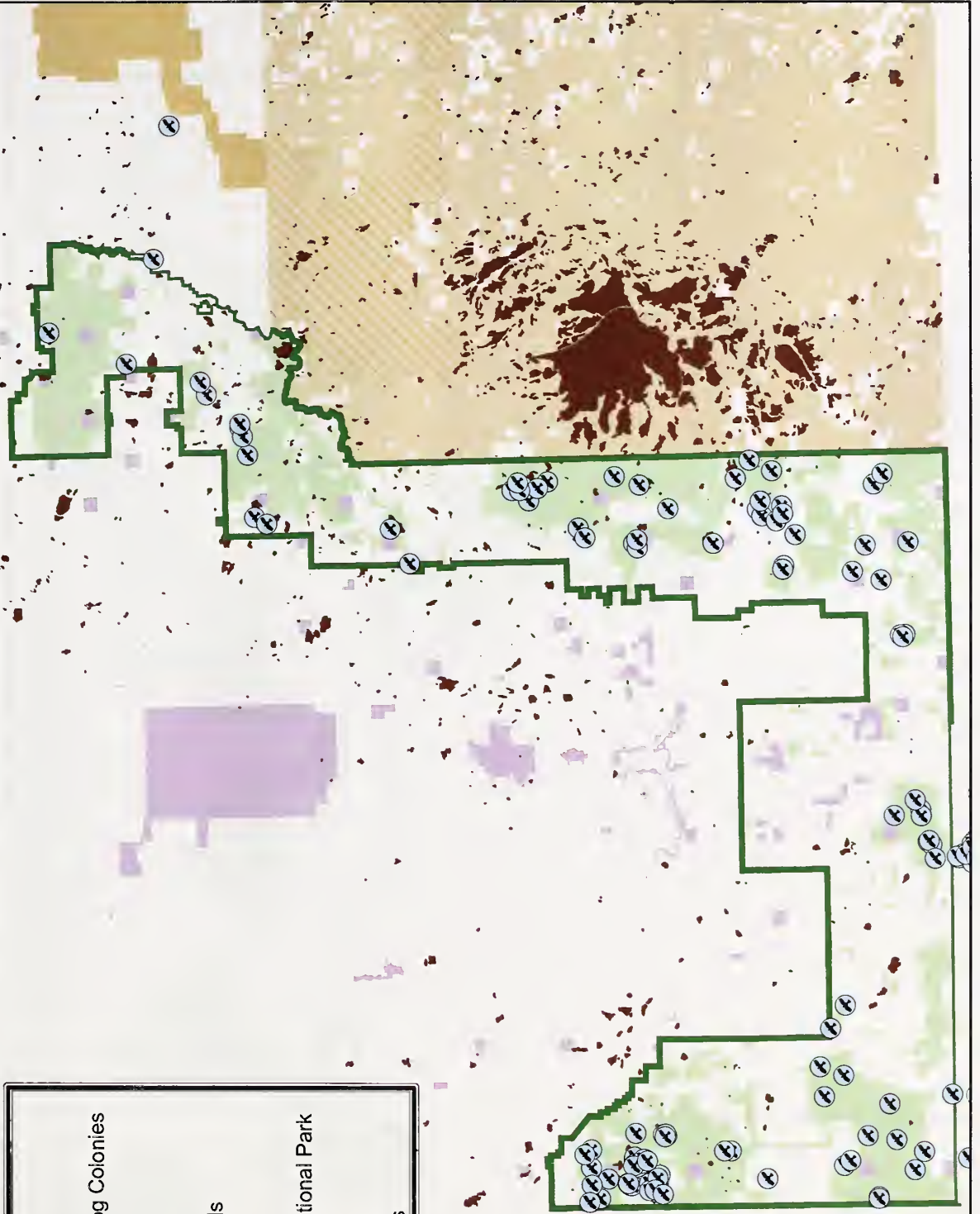
# Ferruginous Hawk Observations West Half Buffalo Gap National Grassland

## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Ferruginous Hawk
- Owenship
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map

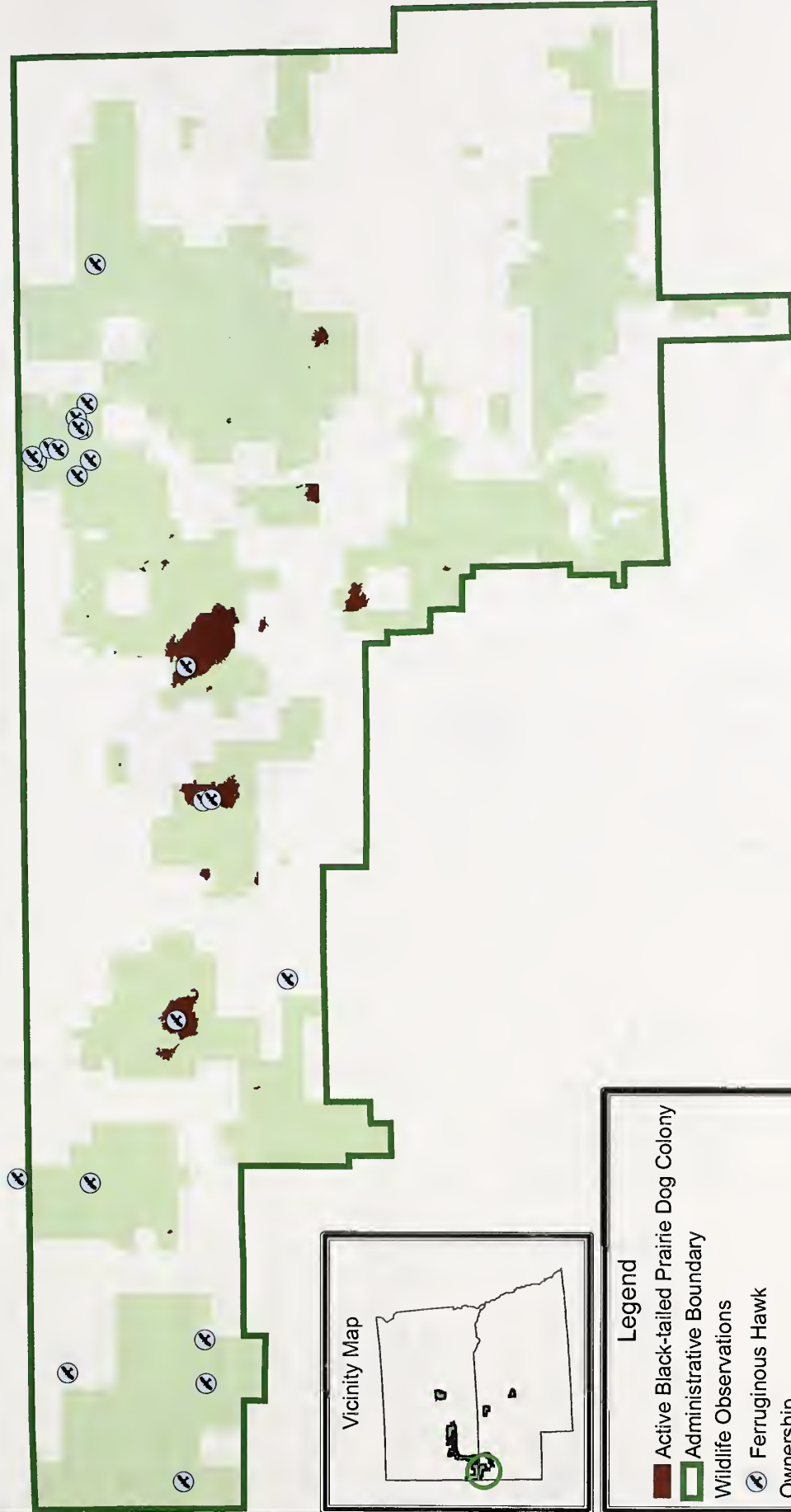








# Ferruginous Hawk Observations Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Ferruginous Hawk Ownership
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles



# Chestnut Collared Longspur Observations West Half Buffalo Gap National Grassland

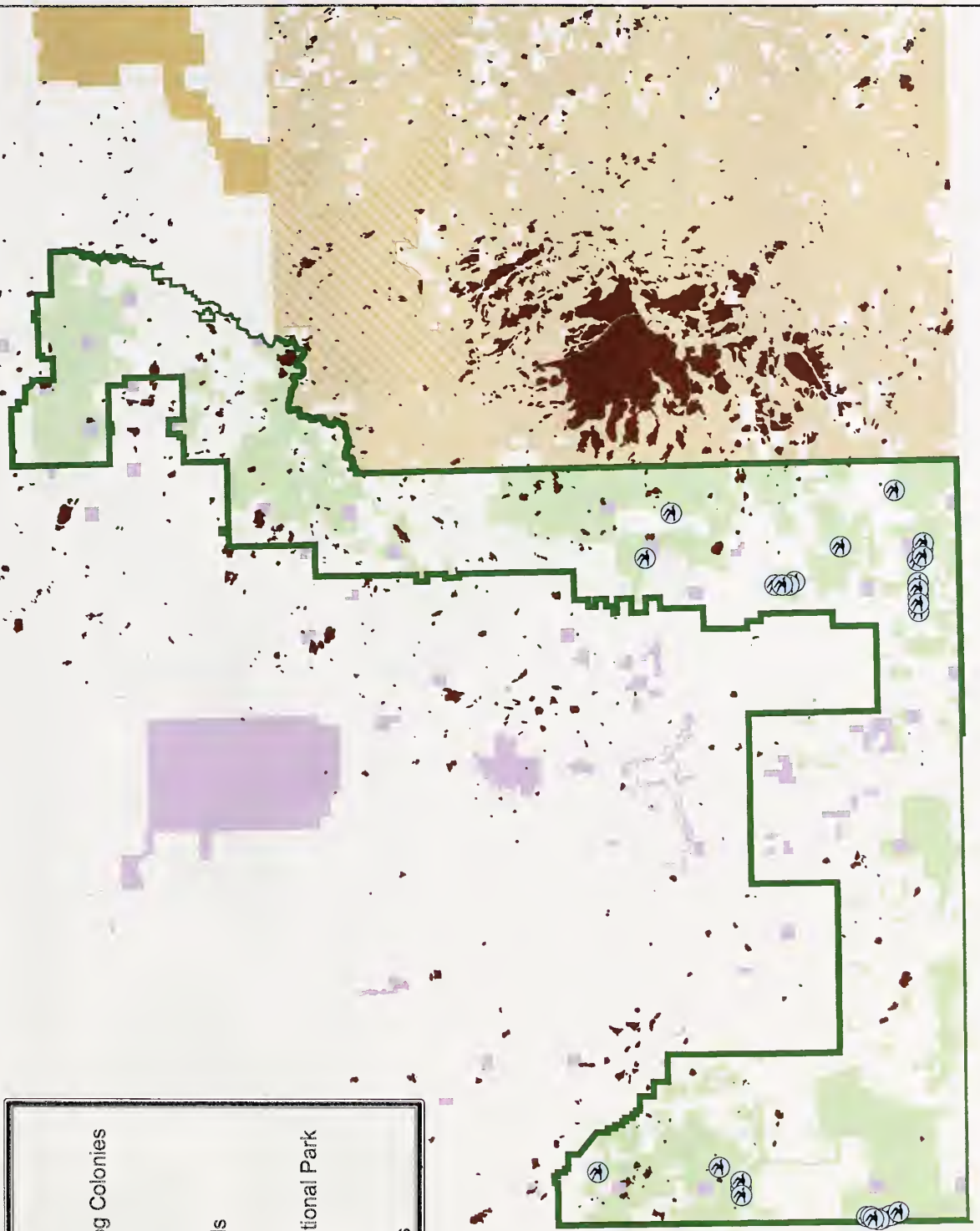


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Chestnut-collared Longspur
- Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map

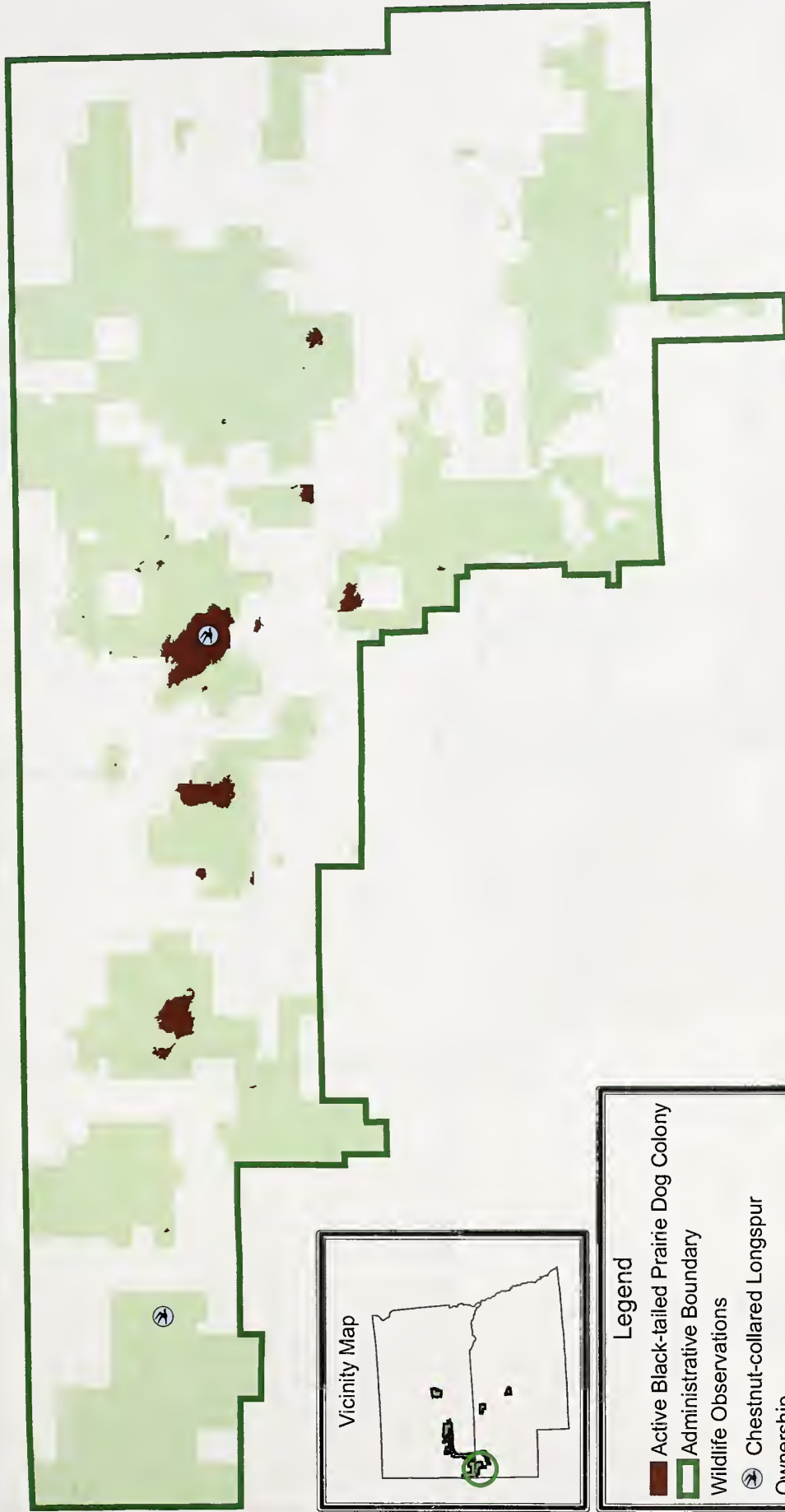








# Chestnut Collared Longspur Observations Oglala National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Chestnut-collared Longspur
- National Forest System Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Short-Eared Owl Observations East Half Buffalo Gap National Grassland

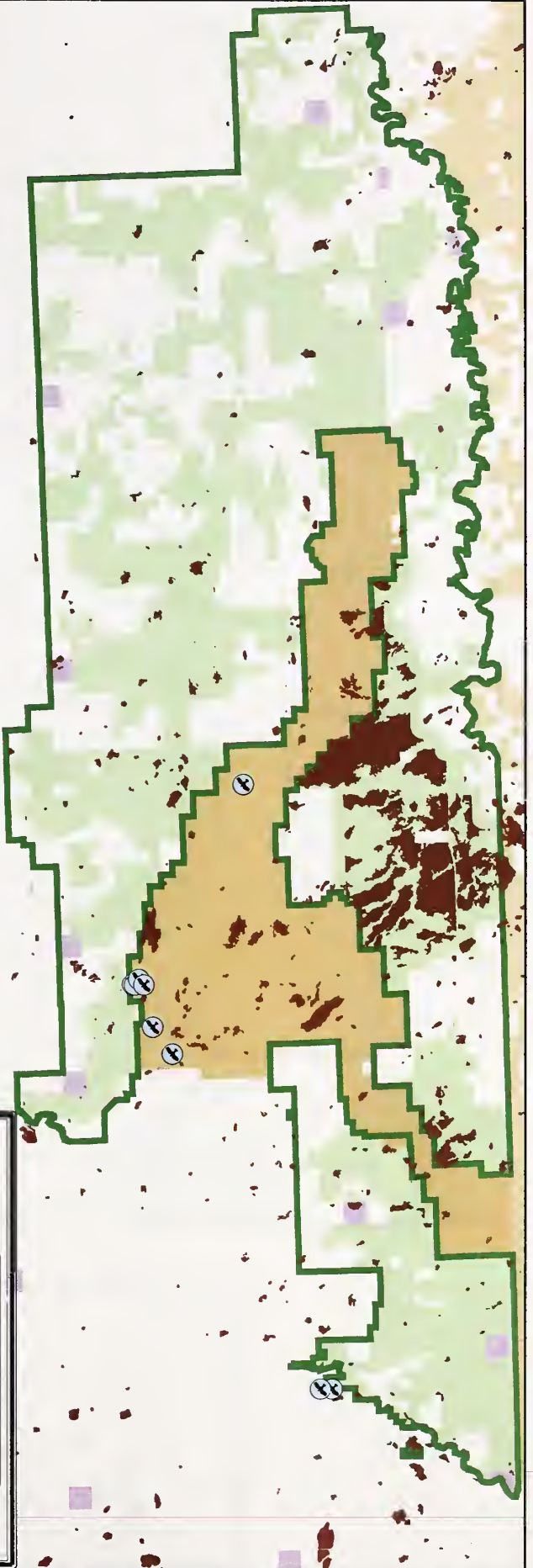


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Short-eared Owl Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







# Short-Eared Owl Observations West Half Buffalo Gap National Grassland

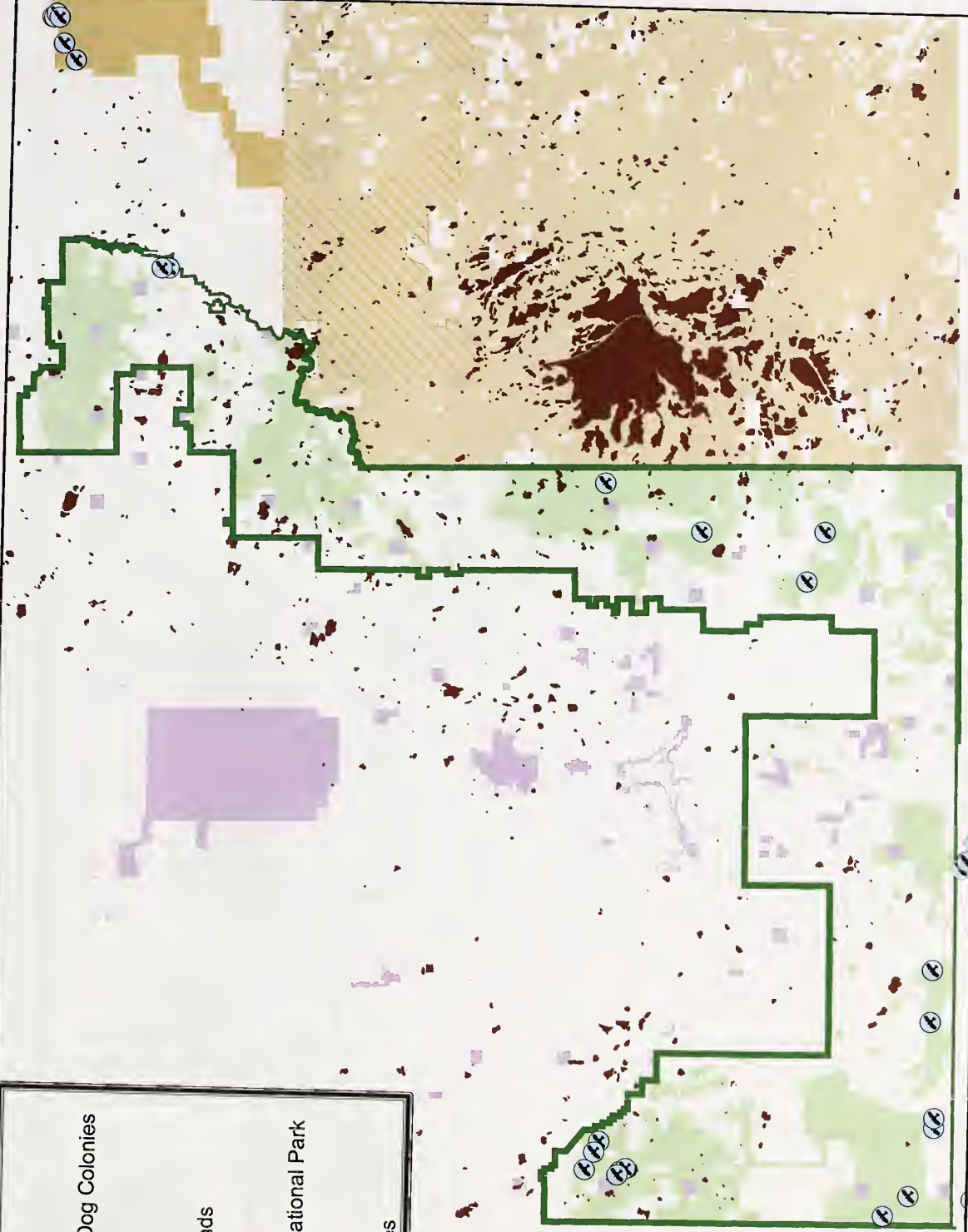


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Short-eared Owl
- Owenship
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map

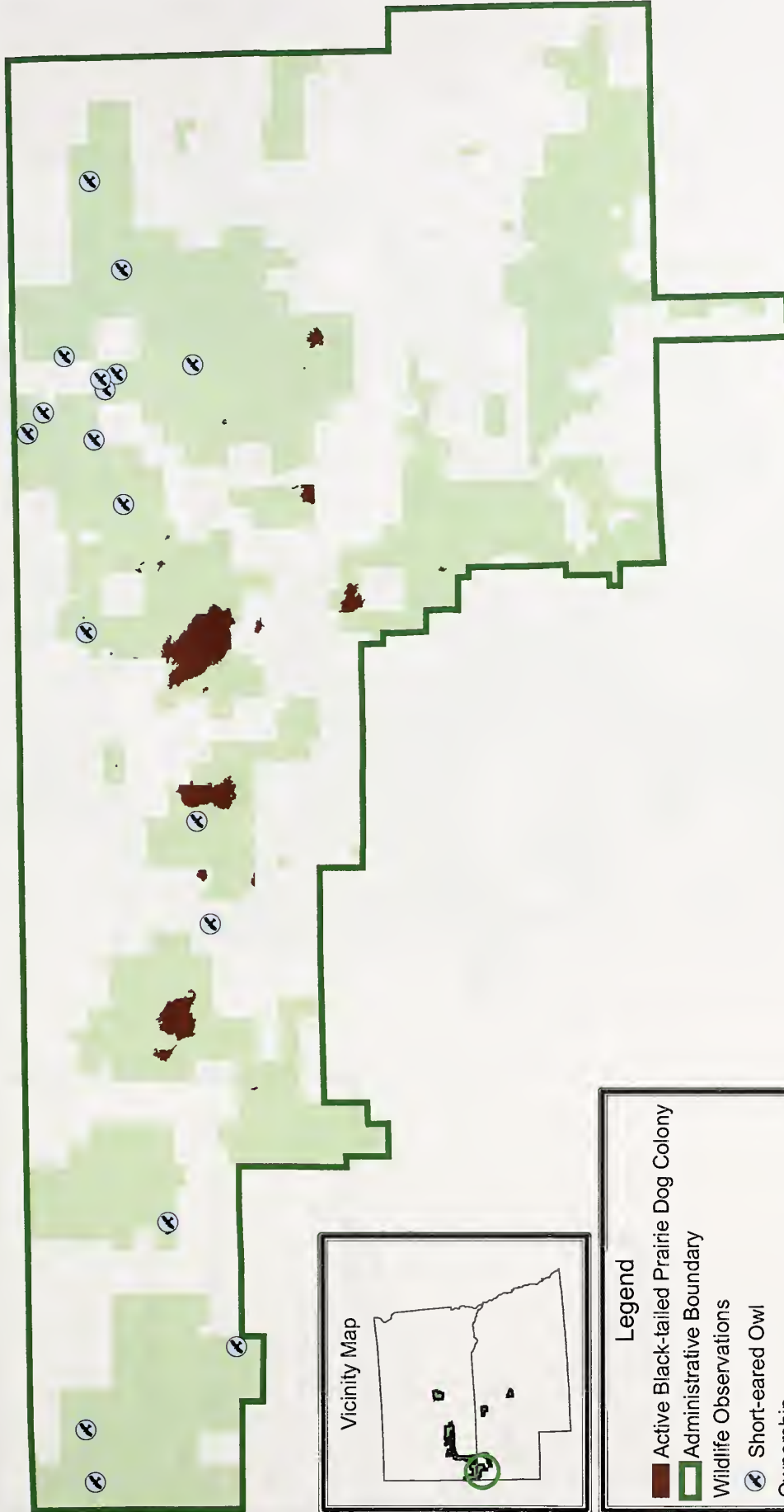








# Short-Eared Owl Observations Oglala National Grassland



Vicinity Map



## Legend

- Active Black-tailed Prairie Dog Colony
  - Administrative Boundary
  - Wildlife Observations
  - Short-eared Owl Ownership
  - National Forest System Lands
  - State Lands
  - Other Ownership
- 0 1 2 3 4 5 Miles







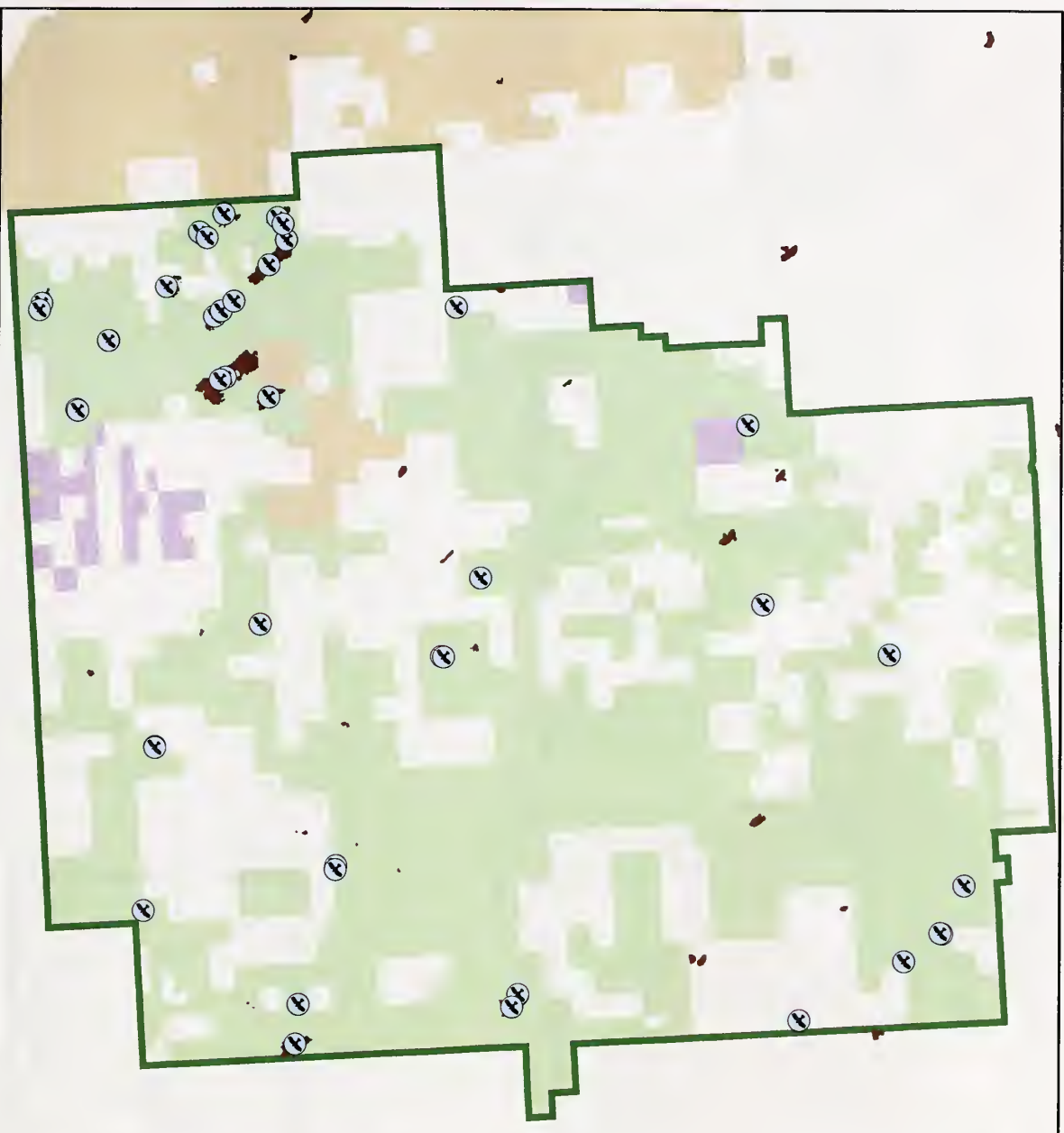
# Western Burrowing Owl Observations Fort Pierre National Grassland



**Legend**

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Western Burrowing Owl
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles







# Western Burrowing Owl Observations East Half Buffalo Gap National Grassland

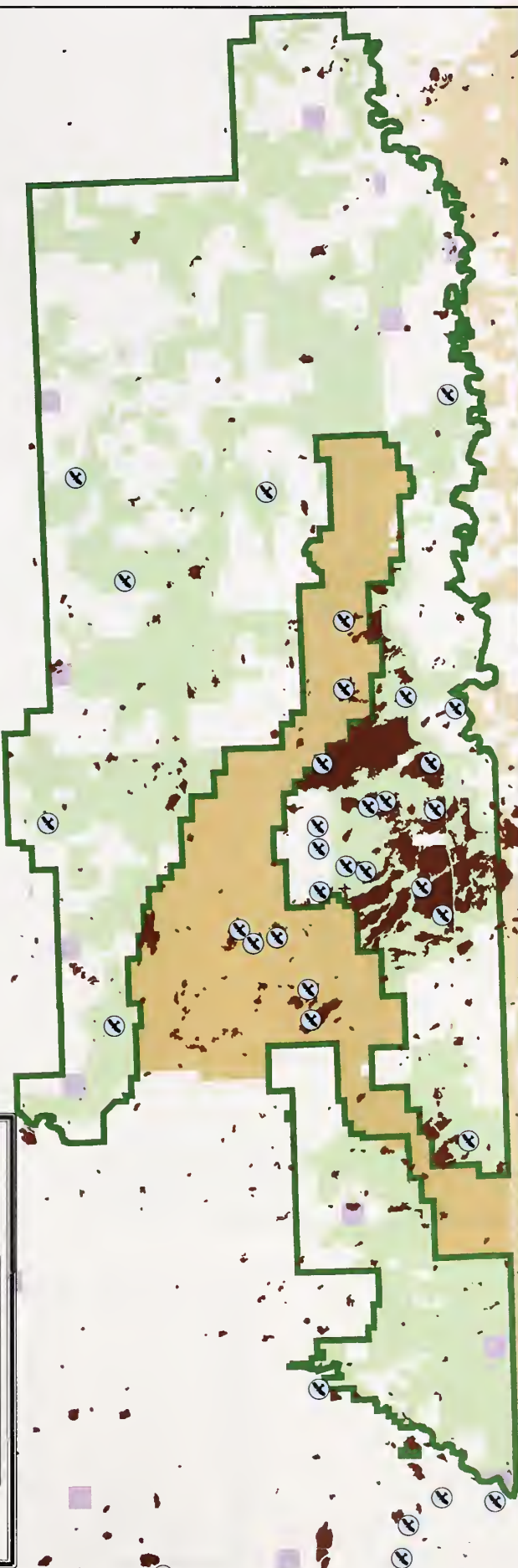


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Western Burrowing Owl Ownership
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map



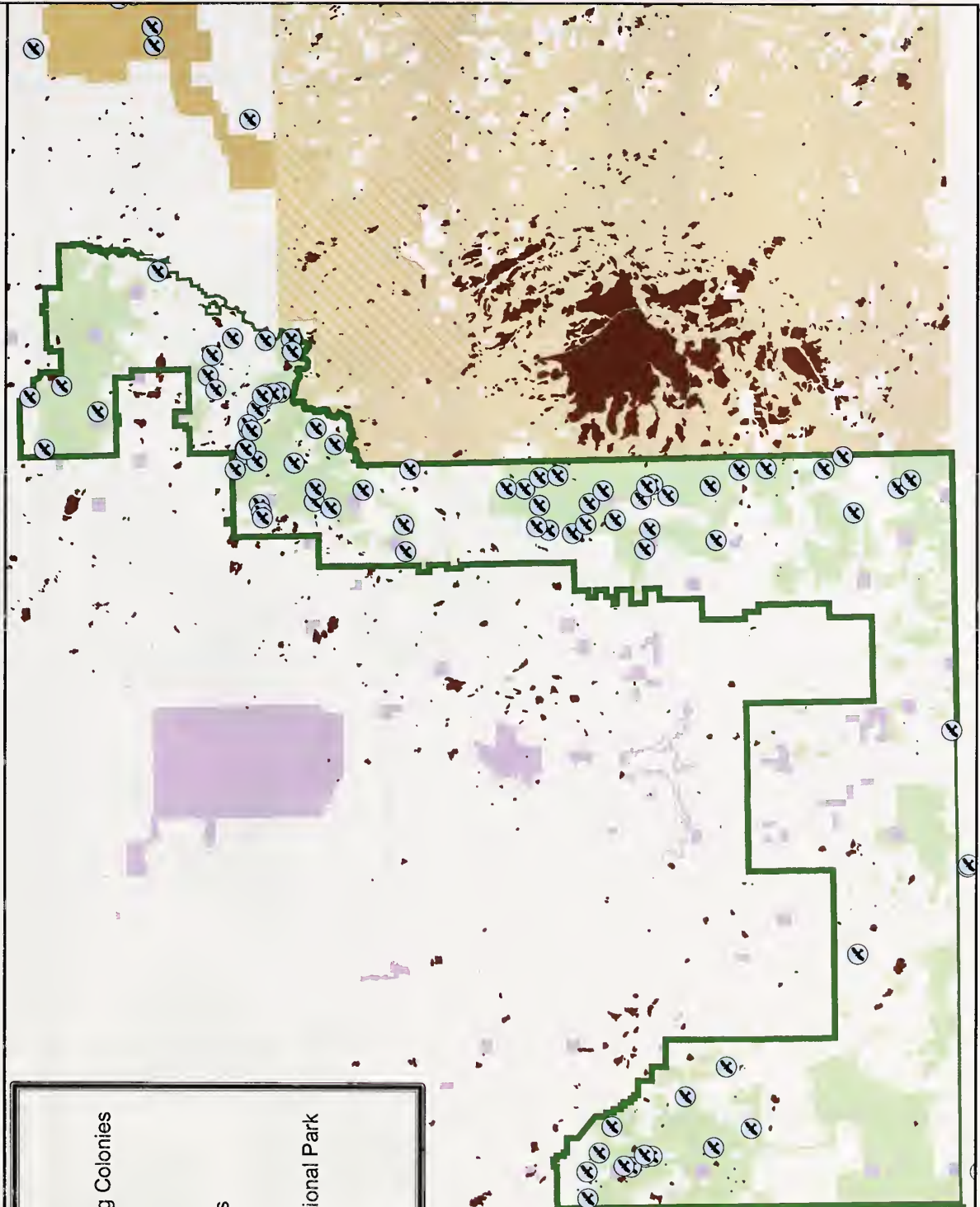
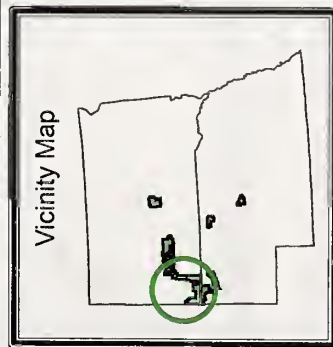




# Western Burrowing Owl Observations West Half Buffalo Gap National Grassland



- Legend**
- Administrative Boundary
  - Active Black-tailed Prairie Dog Colonies
  - Wildlife Observations
  - Western Burrowing Owl
  - Ownership
  - National Forest System Lands
  - Badlands National Park
  - Tribal Lands
  - Tribal Lands managed by National Park
  - State Lands
  - Other Ownership 0 2 4 6 8 10 Miles

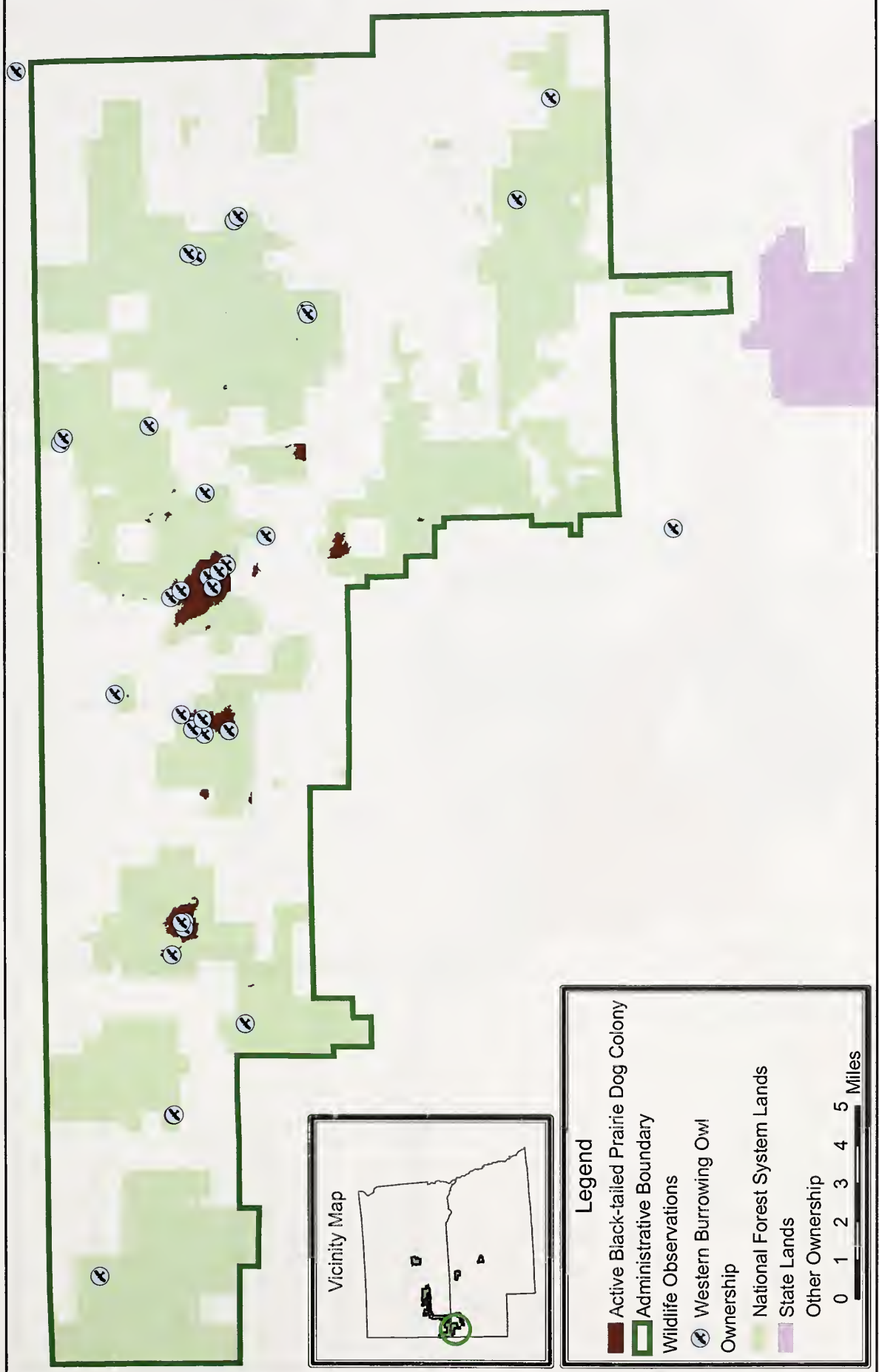








# Western Burrowing Owl Observations Oglala National Grassland







# Mountain Plover Observations East Half Buffalo Gap National Grassland

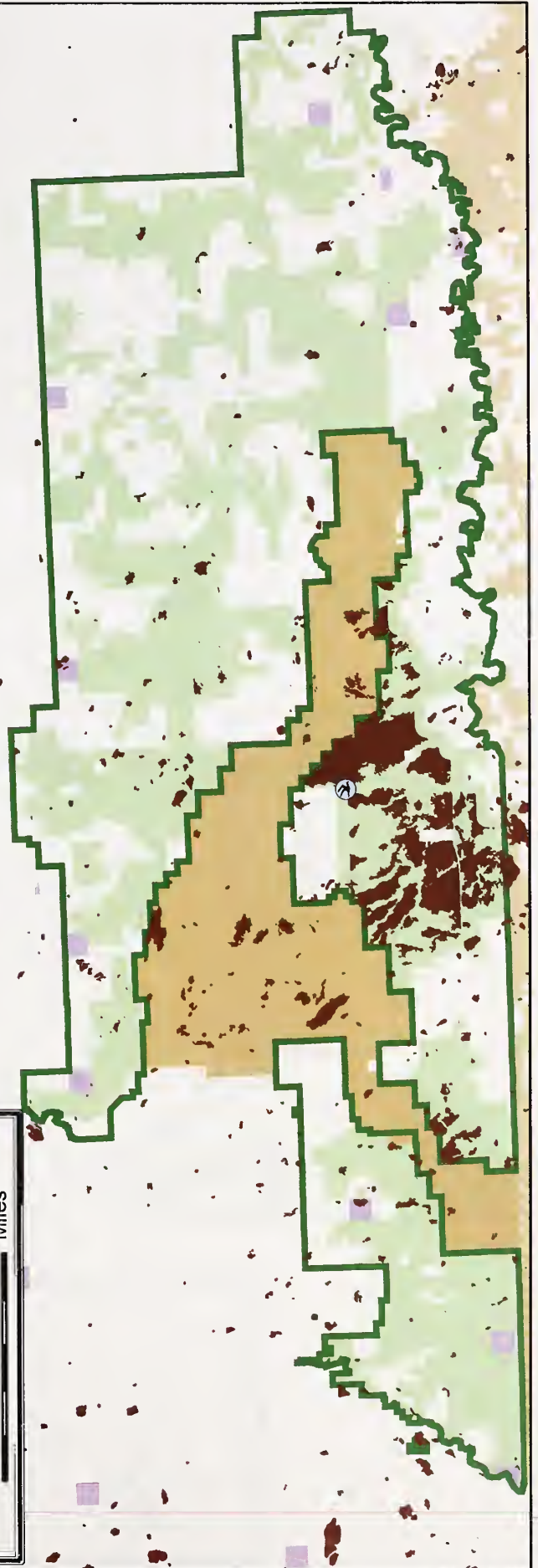


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Mountain Plover
- Owenship
- Bureau of Reclamation
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# Brewers Sparrow Observations West Half Buffalo Gap National Grassland

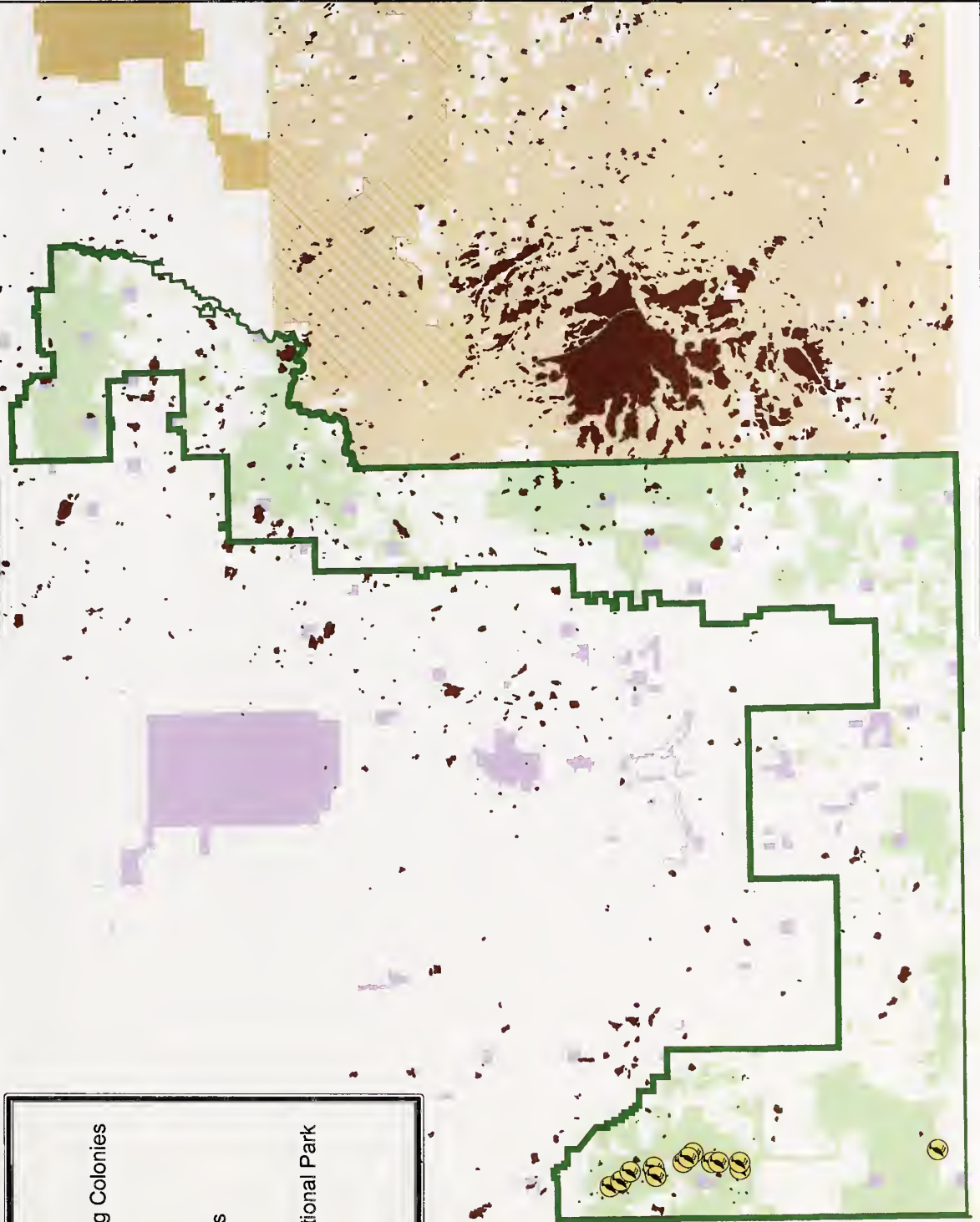


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Brewer's Sparrow
- Ownership
  - National Forest System Lands
  - Badlands National Park
  - Tribal Lands
  - Tribal Lands managed by National Park
  - State Lands
  - Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map









# Grasshopper Sparrow Observations West Half Buffalo Gap National Grassland

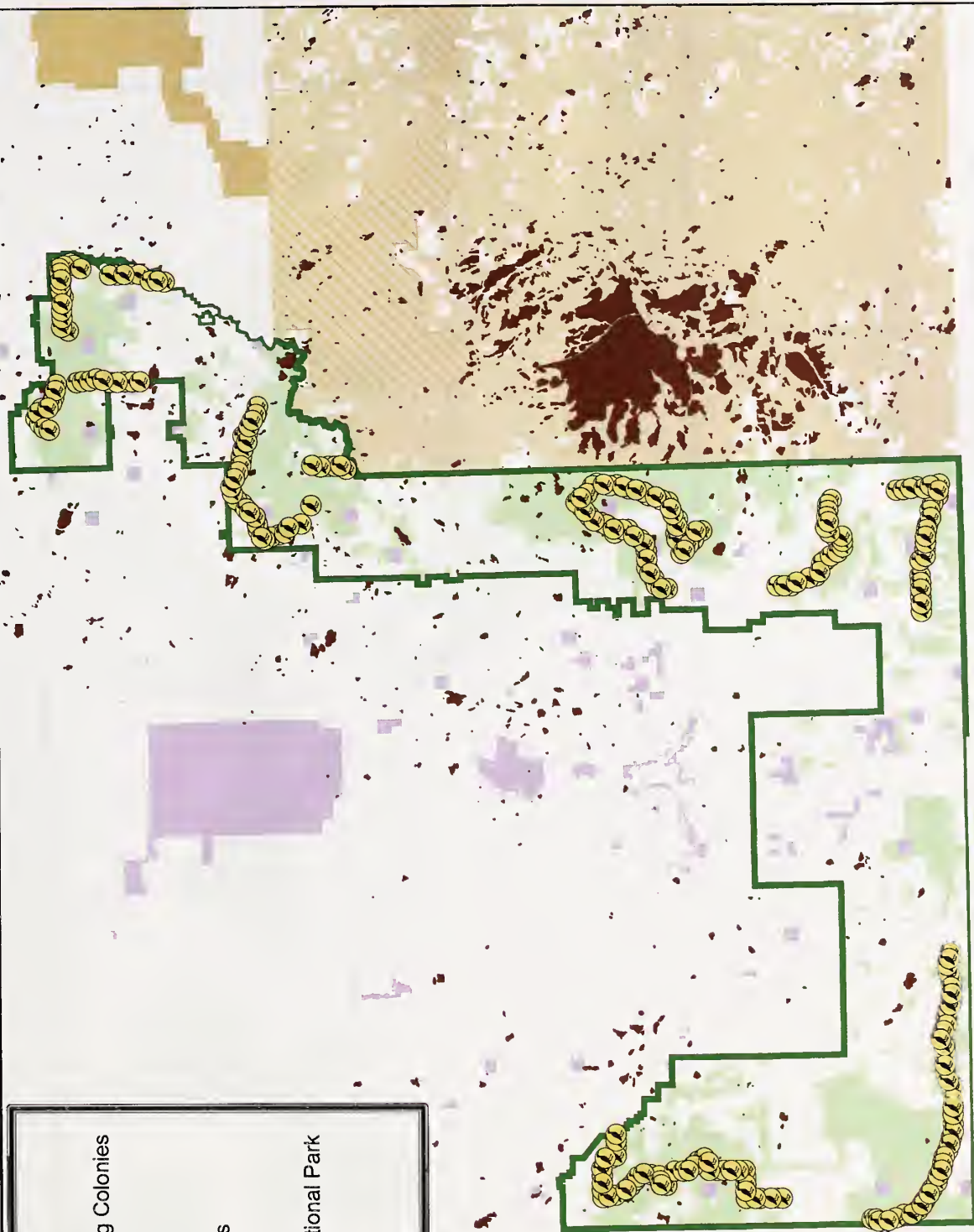
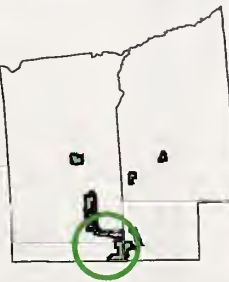


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Grasshopper Sparrow
- Ownership**
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map





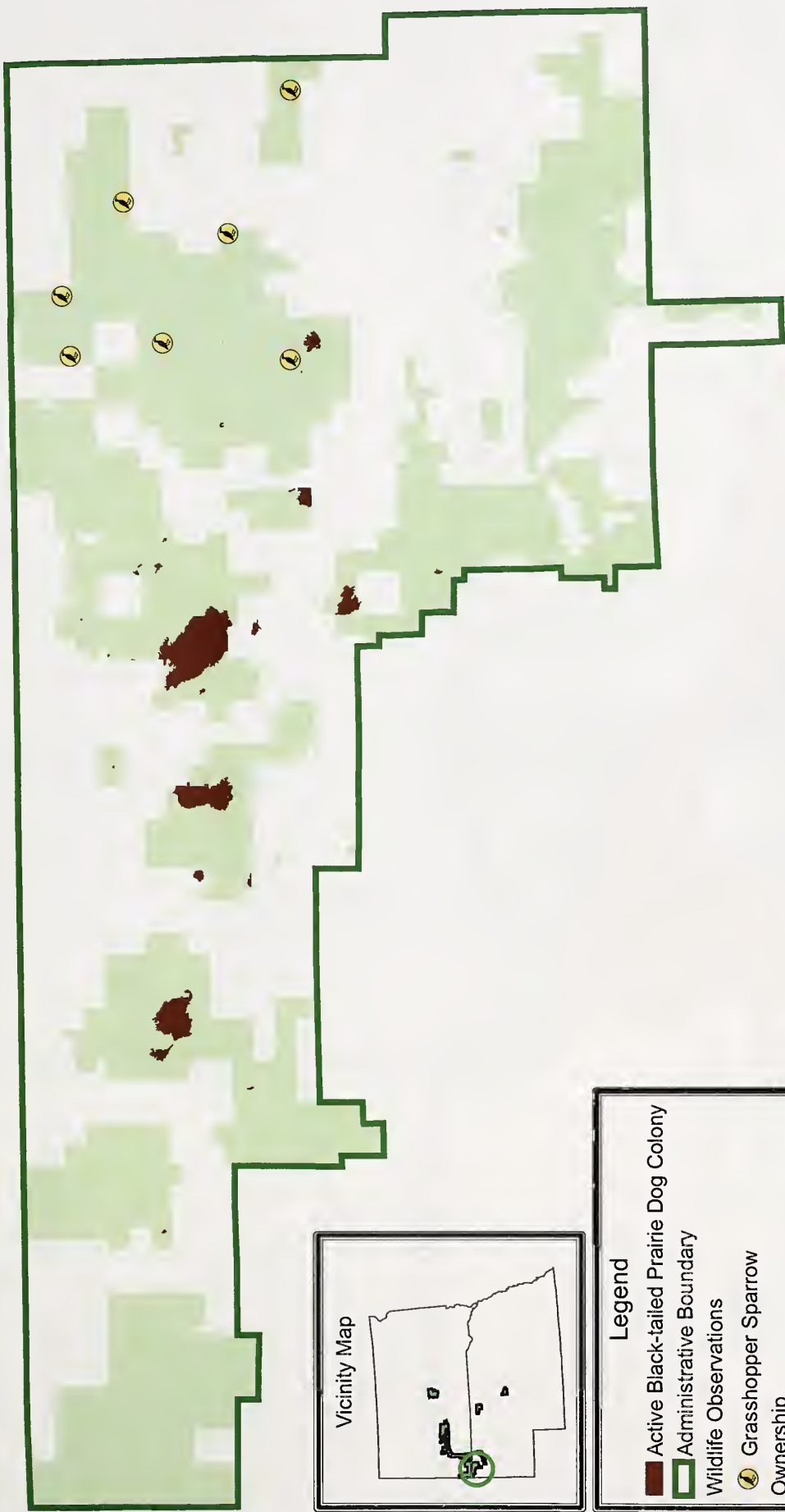
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LIBRARY



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LIBRARY



# Grasshopper Sparrow Observations Oglala National Grassland



**Legend**

Active Black-tailed Prairie Dog Colony

Administrative Boundary

Wildlife Observations

Grasshopper Sparrow Ownership

National Forest System Lands

State Lands

Other Ownership

0 1 2 3 4 5 Miles







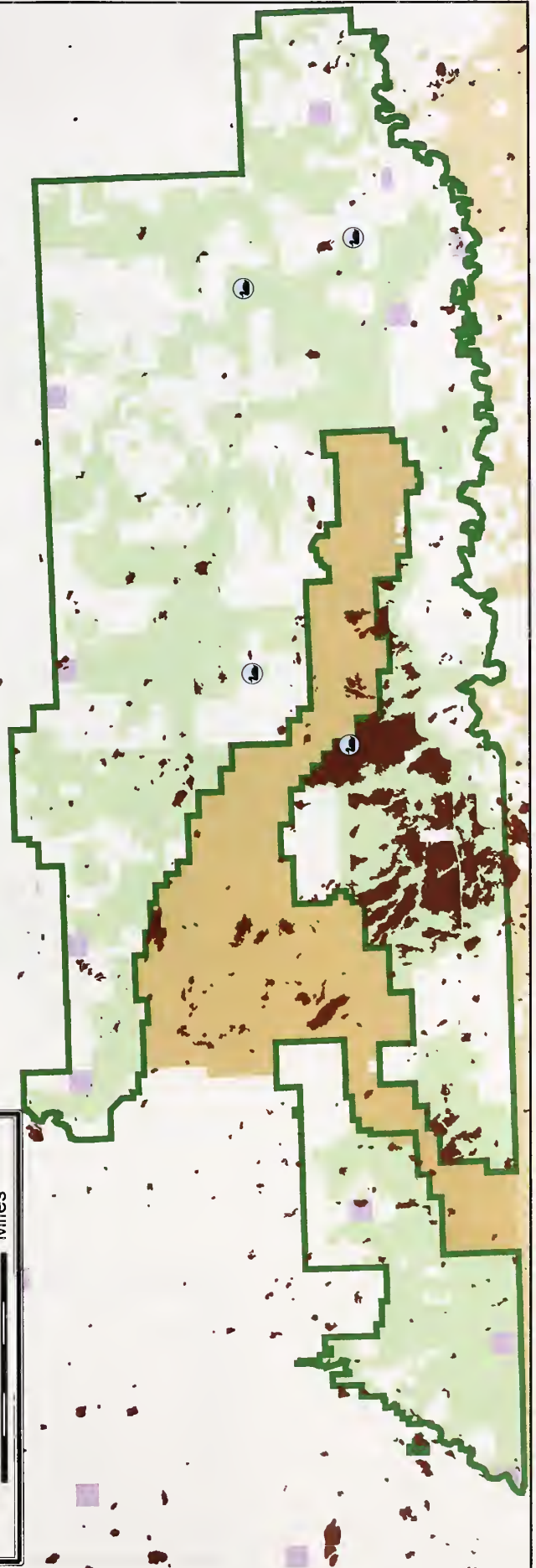
# Trumpeter Swan Observations East Half Buffalo Gap National Grassland



## Legend

- Active Black-tailed Prairie Dog Colony
  - Administrative Boundary
  - Wildlife Observations
  - Trumpeter Swan Ownership
  - Bureau of Reclamation
  - National Forest System Lands
  - Badlands National Park
  - Tribal Lands
  - Tribal Lands managed by National Park
  - State Lands
  - Other Ownership
- 0 2 4 6 8 10 Miles

## Vicinity Map









# Regal Fritillary Butterfly Observations Fort Pierre National Grassland

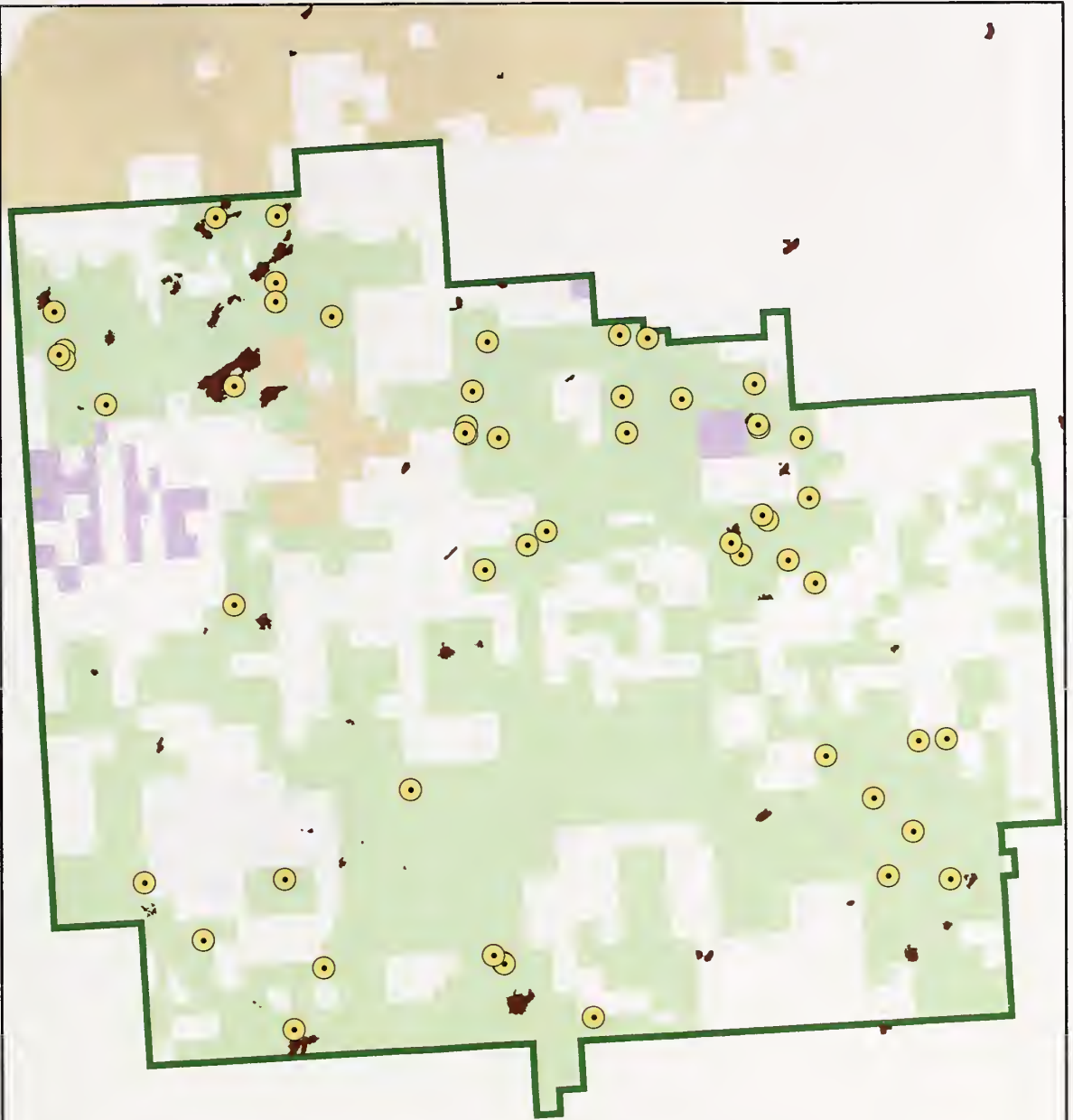


## Legend

- Active Black-tailed Prairie Dog Colony
- Administrative Boundary
- Wildlife Observations
- Regal Fritillary
- Ownership
- National Forest System Lands
- Tribal Lands
- State Lands
- Other Ownership

0 1 2 3 4 5 Miles

## Vicinity Map







# Regal Fritillary Butterfly Observations West Half Buffalo Gap National Grassland

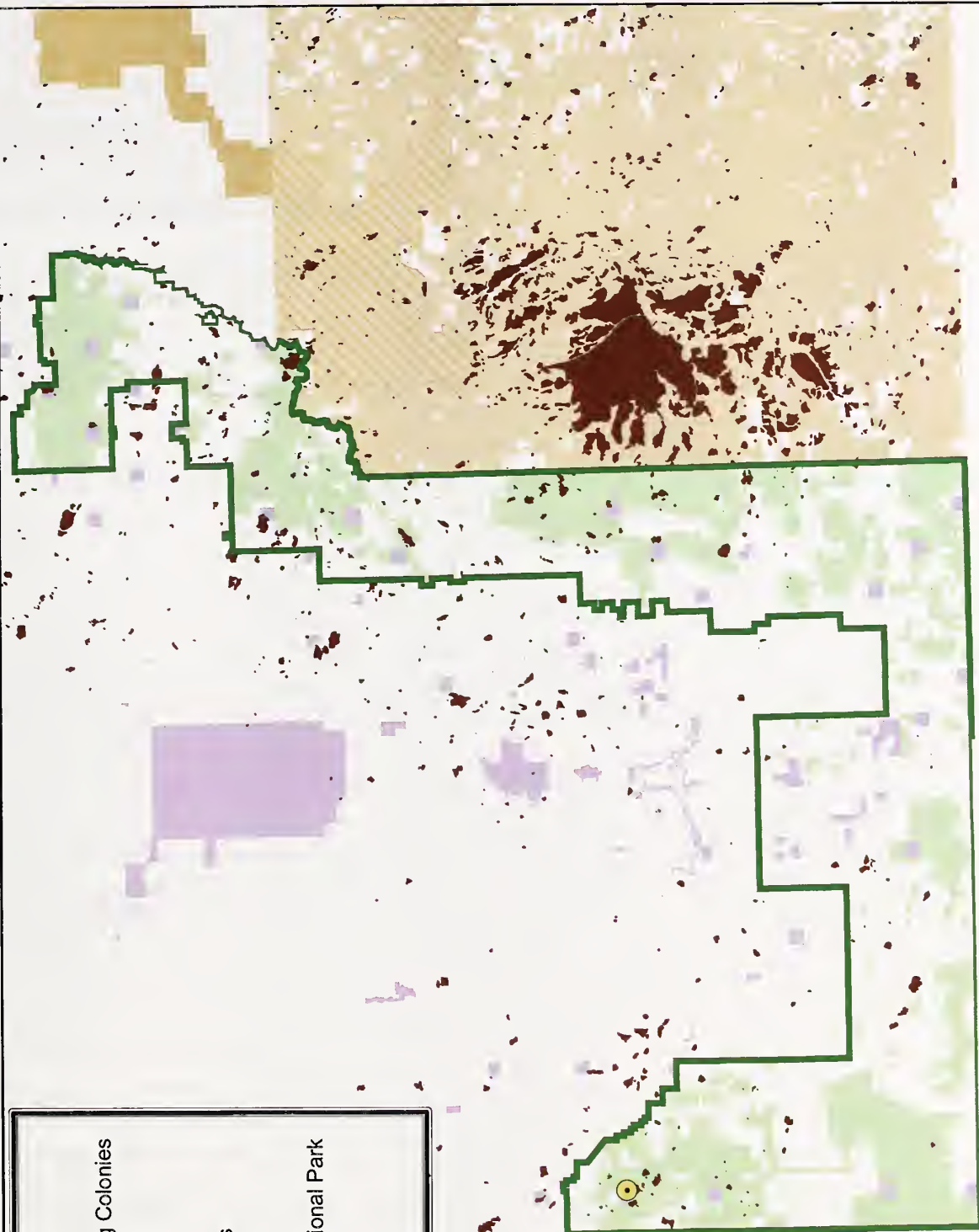


## Legend

- Administrative Boundary
- Active Black-tailed Prairie Dog Colonies
- Wildlife Observations
- Regal Fritillary
- Ownership
- National Forest System Lands
- Badlands National Park
- Tribal Lands
- Tribal Lands managed by National Park
- State Lands
- Other Ownership

0 2 4 6 8 10 Miles

## Vicinity Map







# APPENDIX F

## Common and Scientific Names

Common Name	Species
American bittern	<i>Botaurus lentiginosus</i>
American burying beetle	<i>Nicrophorus americanus</i>
American peregrine falcon	<i>Falco peregrinus</i>
Ants	<i>Hymenopteras</i> spp.
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barr orphaca (Barr's milkvetch)	<i>Astragalus barrii</i>
Bergamots	<i>Monarda</i> spp.
Big sagebrush	<i>Artemisia tridentate</i>
Bison	<i>Bison bison</i>
Black tern	<i>Chlidonias niger</i>
Black-eyed susans	<i>Rudbeckia</i> spp.
Black-footed ferret	<i>Mustela nigripes</i>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>
Blazing stars	<i>Liatris</i> spp.
Blowout Penstemon	<i>Penstemon hydenii</i>
Blue grama	<i>Bouteloua gracilis</i>
Brewer's sparrow	<i>Spizella breweri</i>
Buffalograss	<i>Buchloe dactyloides</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>
Darkling beetles	<i>Coleptera</i> spp.
Deer mice	<i>Peromyscus maniculatus</i>
Ferruginous hawk	<i>Buteo regalis</i>
Finescale dace	<i>Phoxinus neogaeus</i>
Fleabanes	<i>Erigeron</i> spp.
Fringed myotis	<i>Myotis thysanodes</i>
Gaillardias	<i>Gaillardia</i> spp.
Grasshopper sparrow	<i>Ammodramus savannarum</i>
Greater prairie-chicken	<i>Tympanuchus cupido</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Green needlegrass	<i>Stipa viridula</i>
Ground squirrels	<i>Spermophilus</i> spp.
Hall's bulrush	<i>Schoenoplectus hallii</i>
Lesser bladderwort	<i>Utricularia minor</i>
Lesser panicled sedge	<i>Carex diandra</i>
Lesser yellow lady's slipper	<i>Cypripedium parviflorum</i>
Lewis's woodpecker	<i>Melanerpes lewis</i>

Common Name	Species
Loggerhead shrike	<i>Lanius ludovicianus</i>
Long-billed curlew	<i>Numenius americanus</i>
Long-headed coneflower	<i>Ratibida columnifera</i>
McCown's Longspur	<i>Calcarius mccownii</i>
Milkweeds	<i>Asclepias</i> spp.
Mountain plover	<i>Charadrius montanus</i>
Northern goshawk	<i>Accipiter gentilis</i>
Northern harrier	<i>Circus cyaneus</i>
Northern leopard frog	<i>Rana pipiens</i>
Nuttall violet	<i>Viola nutallii</i>
Ord's Kangaroo rat	<i>Dipodomys ordii</i>
Pearl dace	<i>Margariscus margarita</i>
Plains leopard frog	<i>Rana blairi</i>
Plains minnow	<i>Hybognathus placitus</i>
Plains sharp-tailed grouse	<i>Tympanuchus phasianellus</i>
Pocket mouse	<i>Perognathus</i> spp.
Purple coneflower	<i>Echinacera pallida</i> or <i>A. angustifolia</i>
Rabbits	<i>Lepus</i> spp.
Regal fritillary	<i>Speyeria idalia</i>
Rhichardson's ground squirrel	<i>Spermophilus richardsonii</i>
Sagebrush	<i>Artemisia</i> spp.
Short-eared owl	<i>Asio flammeus</i>
Slender cottongrass	<i>Eriophorum gracile</i>
Spinulose woodfern	<i>Dryopteris carthusiana</i>
Sturgeon chub	<i>Macrhybopsis gelida</i>
Swift fox	<i>Vulpes velox</i>
Thistles	<i>Cirsium</i> spp.
Townsend's Big-eared bat	<i>Plecotus townsendii</i>
Trumpeter swan	<i>Cygnus buccinator</i>
Violets	<i>Viola</i> spp.
Visher's eriogonum (Dakota buckwheat)	<i>Eriogonum visherii</i>
Voles	<i>Microtis</i> spp.
Western burrowing owl	<i>Athene cunicularia</i>
Western snowberry	<i>Symphoricarpos occidentalis</i>
Western wheatgrass	<i>Agropyron smithii</i>
Whooping crane	<i>Grus americana</i>
Yellow widelip orchid	<i>Liparis loeselii</i>
Yellow-billed cuckoo	<i>Coccyzus americanus</i>
Pronghorn	<i>Antilocapra americana</i>
Coyote	<i>Canis latrans</i>
Badger	<i>Taxidea taxus</i>
Cottontail	<i>Sylvilagus</i> spp.



Common Name	Species
Golden Eagle	<i>Aquila chrysaetos</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Dickcissel	<i>Spiza americana</i>
Prairie vole	<i>Microtus ochrogaster</i>



# APPENDIX G

## GLOSSARY

**Active Prairie Dog Colony** - A prairie dog colony that supports a prairie dog density that has not been noticeably reduced by poisoning, plague, or shooting and that is essentially at its carrying capacity.

**Activity** - A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives.

**Adaptive Management** - A type of natural resource management in which decisions are made as part of an ongoing process. Adaptive management involves testing, monitoring, evaluating, and incorporating new knowledge into management approaches based on scientific findings and the needs of society. Results are used to modify management policy.

**Administrative Unit** - All the National Forest System lands, including national grasslands, for which one forest supervisor is responsible.

**Adverse Determination** - Please refer to the definition as found in the Biological Assessment and Evaluation appendix.

**Adverse Effect (Heritage Resources)** - Any effect on a heritage resource that would be considered harmful to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

**Affected Environment** - The biological and physical environment that will or may be changed by actions proposed and the relationship of people to that environment.

**Air Pollution** - Any substance or energy (heat, light, noise, etc.) that alters the state of the air from what would naturally occur.

**Airshed** - A geographical area, which, because of topography, meteorology, and climate, routinely shares the same air mass.

**Alternative** - A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. One of several policies, plans, or projects proposed for decision-making. An alternative need not substitute for another in all respects.

**American Indian** - A member of any tribe, band, nation, or other organized group or community of Indians recognized by the United States.

**Animal Unit Month (AUM)** - The amount of feed or forage required by an animal-unit for one month.

**Annual Plant** - A plant that completes its life cycle and dies in one year or less.

**Archeological Resource** - Any physical remains of past human life or activities.



**Availability (Oil and Gas)** - Availability of National Forest System lands, including national grasslands, for oil and gas leasing. Availability refers to lands that have not been formally prohibited from oil and gas leasing activities.

**Available Forage** - That portion of the forage production that is accessible for use by a specified kind or class of grazing animal.

**Available Lands (Oil and Gas)** - Any lands subject to oil and gas leasing under the Minerals Leasing Act.

**Biological Diversity** - The full variety of life in an area, including the ecosystems, plant and animal communities, species and genes, and the processes through which individual organisms interact with one another and their environments. Emphasis is on the diversity of native or endemic species.

**Boundary Management Zone** - Designated area on national grasslands where one or more management tools are applied to help reduce unwanted prairie dog colonization of adjoining private or tribal agricultural lands. These areas extend into national grasslands specified distances from property boundaries.

**Candidate Species** - Species for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list the species for protection under the Endangered Species Act.

**CFR** - Code of Federal Regulations.

**Community (Biological)** - Any assembly of organisms living together.

**Community (Social)** - The people who reside in one locality and are subject to the same laws or who have common interests, etc.

**Community Lifestyle** - The ways in which residents conduct their everyday routines and how those routines are associated with the national forests or national grasslands.

**Community Stability** - The capacity of community to absorb and cope with change without major hardship to institutions or groups within the community.

**Conservation** - The aggregate of practices and customs to perpetuate sustained yield of renewable resources and prevent waste of nonrenewable resources.

**Consultation** - 1) An active, affirmative process that (a) identifies issues and seeks input from appropriate American Indian governments, community groups, and individuals and (b) considers their interests as a necessary and integral part of the BLM and Forest Service decision-making process. 2) The legal obligation requiring the federal government, through consultation, to consider the interests of American Indian tribes and account for those interests in the decision-making process. This legal obligation is based in laws and numerous Executive Orders and statutes. 3) A process that involves discussions between a federal agency and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service under Section 7(a) (2) of the Endangered Species Act of 1973, as amended, regarding potential impacts on a species or critical habitat listed under Section 4 of the act.

**Cool-Season Plant** - A plant that generally makes the major portion of its growth during the late fall, winter, and early spring. Cool-season species generally exhibit the C3 photosynthetic pathway.

**Cooperating Agency** - Any federal agency other than the lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major federal action significantly affecting the quality of the human environment.

**Cost** - The negative or adverse effects or expenditures resulting from an action. Costs may be monetary, social, physical, or environmental in nature.

**Council on Environmental Quality (CEQ)** - An advisory council to the President established by the National Environmental Policy Act of 1969.

**Critical Habitat (Threatened, Endangered, and Proposed Species)** - Habitat of federally listed threatened or endangered species where those physical and biological features essential to conservation of the species are found and which may require special management considerations or protection. This habitat may currently be occupied or may be determined by the Secretary of the interior to be essential for areas outside the species' current range.

**Cropland** - Land primarily used for the production of cultivated crops.

**Cultural Resources** - See Heritage Resources.

**Culture** - That complex whole that includes knowledge, belief, art, morals, customs, and any other capabilities and habitats peculiar to a society.

**Cumulative Effect** - The impact on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of the source (federal or nonfederal agencies, individuals). Cumulative effects can result from individually minor but collectively significant actions taking place over time.

**Decision Document** - Document that provide the criteria and information used in the formulation and evaluation of alternatives and the preferred alternative.

**Direct Effect** - Environmental effect caused by an action and that occur at the same time and place.

**District Ranger** - The official responsible for administering the National Forest System lands, including national grasslands, on a ranger district.

**Disturbance** - A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

**Diversity** - Diversity refers to the distribution and abundance of different plant and animal communities and species within the area covered by land and resource management plans. This term is derived from the National Forest Management Act (NFMA). This term is not synonymous with biological diversity.

**Draft Environmental Impact Statement (DEIS)** - The statement of environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act and released to the public and other agencies for comment and review.

**Drought** - Any year or sequence of years when annual precipitation amounts are less than 75% below average.

**Effect** - Physical, biological, social, and economic result (expected or experienced) resulting from achievement of outputs. Effects can be direct, indirect, and cumulative.



**Effect (Heritage Resources)** - Impact to the characteristics that qualify a heritage resource for the National Register of Historic Places. These can include alterations in location, setting, use design, materials, feeling, and association. Adverse effects include:

- Physical destruction or damage.
- Isolation from or alteration of setting.
- Introduction of visual, audible, or atmospheric elements.
- Physical deterioration from neglect or from any action.
- Transfer, lease, or sale.

**Eligible (Heritage Resources)** - Indicates that a specific heritage resource qualifies for or is already listed in the National Register of Historic Places.

**Encroachment** – 1) Alternative 2 definition: Encroachment occurs when a prairie dog colony on national grasslands expands to a point where unwanted colonization of adjoining land occurs and is unwanted by the landowner and/or manager (This definition is taken from the South Dakota Black-tailed Prairie Dog Conservation and Management Plan); 2) Alternative 3 definition: Encroachment is defined as a national grassland colony that extends across a private or tribal property boundary or would likely cross a property boundary within 1 to 2 years.

**Endangered Species** - Any species of animal or plant in danger of extinction throughout all or a significant portion of its range and so designated by the Secretary of Interior in accordance with the 1973 Endangered Species Act.

**Endangered Species Act of 1973** - An act to conserve ecosystems for endangered species and threatened species, to conserve the endangered species and threatened species themselves, and to take appropriate steps to achieve the purposes of the (relevant) treaties and conventions.

**Environment** - All the conditions, circumstances, and influences surrounding and affecting the development of an organism or group of organisms.

**Environmental Analysis** - An analysis of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions.

**Environmental Impact Statement (EIS)** - A document prepared by a federal agency in which anticipated environmental effects of a planned course of action or development are evaluated. A federal statute (Section 102 of the National Environmental Policy Act of 1969) requires that such statements be prepared. An EIS is prepared first in draft or review form and then in a final form and includes the following points:

- The environmental impact of the proposed action.
- Any adverse impacts that cannot be avoided by the action.
- The alternative courses of action.
- The relationship between local short-term use of the human environment and the maintenance and enhancement of long-term productivity.
- A description of the irreversible and irretrievable commitment of resources which would occur if the action was accomplished.



**Erosion** - The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

**Executive Order** - An order or regulation issued by the President or some administrative authority under presidential direction.

**Experimental Population Area** - Area designated through a federal rule-making process for release of a federally-listed species under provisions of Section 10(j) of Endangered Species Act.

**Extinction** - Disappearance of a taxon of organisms from existence in all regions.

**Extirpation** - The elimination of a species from a particular area.

**Forage** - Vegetation used for food by wildlife and livestock, particularly ungulate wildlife and domestic livestock.

**Forage Production** - The weight of forage that is produced within a designated period of time on a given area. The weight may be expressed as green, air dry, or oven dry. The term may also be modified as to time of production such as annual, current year, or seasonal forage production.

**Forb** - Any herbaceous plant other than those in the grass, sedge, and rush families. For example, any non grass-like plant that has little or no woody material.

**Forest Supervisor** - Official responsible for administering any particular national forest. Forest supervisors report to regional foresters.

**Fossil** - The remains or traces of an organism or assemblage of organisms that have been preserved by natural processes in the Earth's crust. Minerals, such as oil and gas, coal, oil shale, bitumen, lignite, asphaltum and tar sands, phosphate, limestone, diatomaceous earth, uranium, and vanadium, while they may be of biologic origin, are not here considered fossils. Fossils of scientific value may occur within or in association with such minerals.

**FSH** - Forest Service Handbook

**FSM** - Forest Service Manual

**Geographic Area** - A piece of land where management is directed toward achieving a specified desired condition.

**Geographic Information System (GIS)** - A spatial type of information management system that provides for the entry, storage, manipulation, retrieval, and display of spatially oriented data.

**Goal** - A concise statement that describes a desired condition to be achieved sometime in the future. A goal is normally expressed in broad, general terms that are timeless in that there is no specific date by which the goal is to be achieved (36 CFR 219.3). The Region 2 Desk Guide has this to say about goals: "Desired conditions and processes are measurable, have a timeless nature, and describe a resource condition or ecological process. In the first round of (land and resource management) planning, these statements were often termed 'goals.' They describe the conditions or processes we expect to achieve through resource management. Complete accomplishment of desired conditions is not mandatory during the current planning phase, but it is our ultimate intent."

**Grassland** - Any land on which the dominant plants are grasses or on which grasses originally dominated.

**Grazing** - The act of animals consuming plants on range or pasture.

**Guideline** - Advisable actions that should be followed to achieve grassland or forest goals and objectives. Deviations from guidelines must be analyzed during project-level analysis and be documented in a project decision document but do not require management plan amendments.

**Habitat** – The sum total of environmental conditions of a specific place occupied by a wildlife species or a population of such species.

**Habitat Suitability** – A measure of current habitat quality relative to the local biological potential of an area to provide habitat for a species. Habitat suitability is usually expressed as low, moderate or high or is quantitatively presented as an index value scaled from 0 (unsuitable) to 1.0 (optimum habitat).

**Herbage** – total aboveground biomass of plants including shrubs regardless of grazing preference or availability.

**Herbivore** - An animal that subsists principally or entirely on plants or plant material.

**Heritage Resources** - The physical remains and conceptual content or context of an area. Physical remains may include artifacts, structures, landscape modifications, rock art, trails, or roads. Conceptual content/context includes the setting for legendary, historic, or prehistoric events, such as a sacred area for American Indians.

**Human Environment** - Includes the natural and physical environment and the relationship of people within that environment.

**Implementation** - Those activities necessary to initiate the actions in the approved land and resource management plan.

**Inactive Prairie Dog Colony** - A prairie dog colony that no longer supports a prairie dog population due to poisoning or plague; however, the colony area still retains its intact burrow system.

**Indirect Effect** - Environmental effect caused by an action but resulting later in time or farther away in place, yet which are still reasonably foreseeable.

**In-holding** – 1) Land within boundaries of a national forest or national grassland that are owned by some other agency, organization, or individual; 2) private lands surrounded by federal lands.

**Interdisciplinary Team (ID Team)** - A group of people with different specialized training assembled to solve a problem or perform a task. The team is assembled out of recognition that no one discipline is sufficiently broad to adequately solve the problem. Through interaction, participants bring different points of view and a broader range of expertise to bear on the problem.

**Irretrievable Commitment** - Applies to loss of production or use of renewable natural resources for a period of time. For example, road construction leads to an irretrievable loss of the productivity of the land under which the road is located. If the road is later obliterated, the land may eventually become productive again. The production lost is irretrievable, but the action is not irreversible.

**Irreversible Commitment** - Decision causing changes that cannot be reversed. For example, if an area is mined, that area cannot, at a later date, be allocated to some other resource activities, such as Wilderness. Once mined, the ability of that area to meet Wilderness criteria, for instance, has been irreversibly lost. Irreversible commitments often apply to some non-



renewable resource, such as minerals and heritage resources.

**Land and Resource Management Plan (LRMP)** - A document that guides natural resource management and establishes standards and guidelines for a national forest or national grassland. Required by the National Forest Management Act.

**Land Exchange** - The conveyance of nonfederal land or interests to the United States in exchange for National Forest System land, including national grasslands, or interests in such land.

**Landowner** - Person who has title to land recognized by the prevailing legal system.

**Landscape** - The landforms of a region in aggregate.

**Lead Agency** - The agency or agencies preparing or having taken the primary responsibility for preparing an environmental impact statement.

**Lease (Oil and Gas)** - A legal contract granting the right to explore for, develop, and produce oil and gas resources for a specific period of time under certain agreed-upon terms and conditions.

**Lease Stipulations (Oil and Gas)** - Additional specific terms and conditions that modify the lease rights or change the manner in which an operation may be conducted.

**Listed Species** - Any species of fish, wildlife, or plant officially designated as endangered or threatened by the Secretary of the Interior or Commerce.

**Livestock** - Domestic animals.

**Major Federal Action** - Includes actions with effects that may be major and which are potentially subject to federal control and responsibility.

**Management** - The organization of actions designed to reach a given set of objectives.

**Management Area** - Area of the grassland that are managed for a particular emphasis. These areas have common management direction and may be non contiguous on the national forest or national grassland.

**Management Indicator Species (MIS)** - A plant or animal species selected because their status is believed to (1) be indicative of the status of a larger functional group of species, (2) be reflective of the status of a key habitat type, or (3) act as an early warning of an anticipated stressor to ecological integrity. The key characteristic of a MIS species is that its status and trend provide insights to the integrity of the larger ecological system to which it belongs.

**Midgrass** - Grasses which normally grow 18 - 36 inches tall, as in western wheatgrass.

**Mitigation** - Includes avoiding an impact by not taking certain actions; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

**Mitigation (Heritage Resources)** - Actions taken to reduce or eliminate adverse effects caused to heritage resources. Avoidance is not considered a mitigation measure.

**Mixed Grass Prairie** - Grassland type west of the tallgrass prairie in North America, consisting of a mixture of tall-, short-, and midgrasses and other herbaceous plants, also called mixed



prairie.

**Model** – A mathematical and computer-based simulation used as a tool to enhance understanding of complex systems.

**National Environmental Policy Act of 1969 (NEPA)** - An act declaring a national policy to encourage productive harmony between people and their environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people and to enrich the understanding of the ecological systems and natural resources important to the nation and to establish a Council on Environmental Quality.

**National Forest Management Act (NFMA)** - A 1976 law that amended the Forest and Rangeland Renewable Resources Planning Act and requires the preparation of Land and Resource Management Plans.

**National Forest System (NFS) Lands** - Federal lands designated by Executive Order or statute as national forests, national grasslands, or purchase units, or other lands under the administration of the U.S. Forest Service.

**National Grasslands** - Lands designated national grasslands by the Secretary of Agriculture and permanently held by the Department of Agriculture under Title III of the Bankhead-Jones Farm Tenant Act.

**National Register of Historic Places (NRHP)** - A list of heritage resources that have local, state, or national significance maintained by the Secretary of the Interior.

**Native** - A plant or animal indigenous to a particular locality.

**Natural** - Occurring in conformity with the ordinary course of nature. An area having undergone no, or at least minimal, disturbance by anthropogenic forces.

**No Adverse Effect (Heritage Resources)** - Any effect on a heritage resource that would not be considered harmful to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

**No Effect (Heritage Resources)** - No effect to those characteristics that qualify the property for inclusion in the National Register of Historic Places.

**No Action Alternative** - An alternative that maintains established trends or management direction.

**Non-essential Experimental Population** – Population of a federally listed species released under Section 10(j) of the Endangered Species Act and whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild. Section 10(j) of ESA authorizes listed species to be released as experimental populations outside their currently occupied range, but within probable historic habitat, to further species conservation.

**Notice of Availability** – Notice that an environmental impact statement has been prepared and is available for review.

**Notice of Intent** - Notice that an environmental impact statement will be prepared and considered. The notice briefly describes the proposed action and possible alternatives, the agency's scoping process, and the address and name of the agency to contact regarding questions about the proposed action and the environmental impact statement.

**Objective** - A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and resources to be used in achieving identified goals.

**Paleontological Area** - A unit of land that contains fossils of plants and animals, shellfish, early vertebrates, coal swamp forests, early reptiles, dinosaurs, and other prehistoric plants and animals.

**Paleontological Resource** - Fossil resources, including both body and trace fossils, of all groups of organisms (vertebrates, invertebrates, plants, pollen, and spores, etc.)

**Paleontology** - The study of life in past geologic times.

**Perennial Plant** - A plant that lives for two or more years.

**Permitted Grazing** - Use of a National Forest System range allotment under the terms of a grazing permit.

**Permittee (Grazing)** - One who holds a permit to graze livestock on state, federal, or certain privately owned lands.

**Planning Period** - A time interval for which inputs and outputs are identified in a planning process. The planning period for Land and Resource Management Plans are ten years.

**Planning Unit** - Each individual national grassland and forest in the planning area.

**Plant Association** - A grouping of plants that have reached dynamic equilibrium with the local environmental conditions; equivalent to climax. On site, there is no evidence of replacement by other dominant plant species, and there is no evidence of serious disturbances.

**Plant Community** - An assemblage of plant species living in an area. A plant community is an organized unit to the extent that it has characteristics in addition to the individuals and populations and functions as a unit.

**Prairie Dog Colony** - Prairie dog population consisting of one or more family units (coteries) that occupy a local area and physically and socially interact with one another on a daily basis. The outermost burrow openings along the perimeter of a colony are typically used to define its extent.

**Prairie Dog Colony Complex** - A group of at least 10 prairie dog colonies with nearest-neighbor inter-colony distances not exceeding 6 miles and with a total colony complex acreage of at least 1,000 acres.

**Productivity** - The total quantity of organic material produced within a given period by organisms or the energy that this represents, such as gram-calories per square centimeter per year. The innate capacity of an environment to produce plant and animal life. The capacity of a soil to produce a certain kind of crop under a defined set of management conditions.

**Proposed Action** - In terms of the National Environmental Policy Act, the project, activity, or action that a federal agency intends to implement or undertake and which is the subject of an environmental analysis.

**Proposed Critical Habitat** - Habitat proposed for designation to benefit any listed or proposed species. Notice of proposed critical habitat appears in the Federal Register.

**Proposed Species** - Any species of fish, wildlife, or plant that is proposed by the Fish and

Wildlife Service or the National Marine Fisheries Service for listing as threatened or endangered.

**Public** - The people of an area, state, or nation that can be grouped together by a commonality of interests, values, beliefs, or life-style.

**Public Involvement** - A Forest Service process designed to broaden the information base upon which agency decisions are made. It includes the following steps:

- Informing the public of Forest Service activities, plans, and decisions.
- Encouraging public understanding about the participation in the planning processes that lead to final decision-making.

**Public Issue** - A subject or question of widespread public interest identified through public participation relating to management of National Forest System lands, including national grasslands.

**Rangeland** - Lands on which the native vegetation is predominately grasses, grass-like plants, forbs, or shrubs suitable for grazing or browsing usage. Includes lands revegetated naturally or artificially to provide a forage cover that is managed like native vegetation.

**Rangeland Health** - The degree to which the integrity of the soil, the vegetation, the water, and air as well as the ecological processes of the rangeland ecosystem is balanced and sustained. Integrity is defined as: Maintenance of the structure and functional attributes characteristic of a particular locale, including normal variability.

**Ranger District** - Administrative subdivision of the national forest or national grassland supervised by a district ranger who reports to a forest supervisor.

**Record of Decision (ROD)** - A document separate from, but associated with, an environmental impact statement that publicly and officially discloses the responsible official's decision on the proposed action.

**Recovery Plan** - Identifies, justifies, and schedules the research and management action necessary to reverse the decline of a species and ensure its long-term survival.

**Region** - An administrative unit within the National Forest System lands, which includes national grasslands. The United States is divided into nine geographic regions. Each region has a headquarter office and is supervised by a regional forester. Each region contains national forests and sometimes national grasslands or other lands administered by the Forest Service.

**Regional Forester** - The official responsible for administering a single region.

**Responsible Official** - The Forest Service employee who has the delegated authority to make a specific decision.

**Rocky Mountain Region** - The Forest Service organizational units consisting of Colorado, Wyoming, part of South Dakota, Nebraska, and Kansas. Also known as Region 2.

**Rodenticide** - A pesticide formulated to kill rodents.

**Scoping Process** - An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action. Identifying the significant environmental issues deserving of study and de-emphasizing insignificant issues, narrows the scope of the environmental impact statement accordingly.



**Sensitive Species** - Those plant and animal species identified by Regional Foresters for which population viability is a concern, as evidenced by the following:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

**Shortgrass** - Grasses which normally are only a few inches tall, including blue and hairy grama and buffalograss

**Shortgrass Prairie** - Native grasslands which are dominated by shortgrasses.

**Significant Archeological Sites** - Sites eligible for inclusion in the National Register of Historic Places as determined by the Forest Service in consultation with the State Historic Preservation Officer.

**Social Analysis** - An analysis of the social (as distinct from the economic and environmental) effects of a given plan or proposal for action. Social analysis includes identification and evaluation of all pertinent desirable and undesirable consequences to all segments of society.

**Soil Erosion** - The detachment and movement of soil from the land surface by water or wind. Soil erosion and sediment are not the same.

**Species** - A group of potentially interbreeding populations that is reproductively isolated from other such groups.

**Species at Risk** – Federally listed endangered, threatened, candidate, and proposed species and other species for which loss of viability, including reduction in distribution or abundance, is a concern within the planning area. Other species at risk include sensitive species and state listed species.

**Standard** - Actions that must be followed or are required limits to activities in order to achieve grassland or forest goals and objectives. Site-specific deviations from standards must be analyzed and documented in management plan amendments.

**Stipulation (Oil and Gas)** - A provision that modifies standard lease rights attached to and made a part of the lease.

**Threatened Species** - Any species likely to become endangered within the foreseeable future throughout all or a significant portion of its range and that has been designated in the Federal Register by the Secretary of Interior as such.

**Topography** - The configuration of a land surface including its relief, elevation, and the position of its natural and human-made features.

**Vegetation Management** - Any activities undertaken to modify the existing condition of vegetation.

**Vegetation Structure** – The vertical characteristics or profile of vegetation.

**Vertebrate Fossil** - The fossilized remains of animals that had a bony skeleton or backbone.

**Viable Population** - A group of individuals of a particular species that produces enough offspring for long-term persistence and adaptation of the species or population in a given place. For planning purposes, 36 CFR 219.19 defines a viable population as one that has the estimated

numbers and distribution of reproductive individuals to ensure that a continued viable population is well-distributed in the planning area. A planning area is further defined by 36 CFR 219.3 as the "area of the National Forest System covered by a regional guide or forest plan." Direction estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area.

**Warm-Season Plant** - A plant that makes most or all its growth during the spring, summer, or fall and is usually dormant in winter. A plant that usually exhibits the C4 photosynthetic pathway.

**Watershed** - The area of land bounded by a divide, that drains water, sediment, and dissolved materials to a common outlet at some point along a stream channel (Dunne and Leopold, 1978), or to a lake, reservoir, or other body of water. Also called drainage basin or catchment.

## APPENDIX H

### CONSISTENCY CHECK WITH THE SOUTH DAKOTA BLACK-TAILED PRAIRIE DOG CONSERVATION AND MANAGEMENT PLAN

The Forest Service (FS) has reviewed the South Dakota Black-Tailed Prairie Dog Conservation and Management Plan (State Plan) in response to the direction stated in the 2002 ROD for the Land and Resource Management Plan (LRMP).

The South Dakota State Plan is organized by objectives and strategies. These items were reviewed by and responded to by the Forest Service. The Forest Service's response gives concurrence or non-concurrence and rational and/or discussion (where needed) to each of these items either directly or through this FEIS and/or associated Record of Decision (ROD).

#### **Objective 1: Determine a statewide population goal and identify special management areas.**

Strategy 1.1: Determine current prairie dog acreage in South Dakota.

**FS Response: Concur**

Strategy 1.2: Coordinate state population goals with standards established by the Multi-state Black-Tailed Prairie Dog Conservation Team.

**FS Response: The ROD will identify a minimum desired range of acres (18,000 to 26,900) in South Dakota and (1,000 to 1,800) in Nebraska. Federal Grasslands contribute to and are part of the State's total acreage needs.**

Strategy 1.3: Population objectives included in the "Multi-state Conservation Plan for the Black-tailed Prairie Dog, *Cynomys ludovicianus*, in the United States" (Luce 003) are ...:

**FS Response: There are 6 population objectives listed. We concur with all six and are critical to two:**

#3. Maintain at least the current black-tailed prairie dog occupied acreage in the two complexes greater than 5,000 acres that now occur on and adjacent to Conata Basin-Buffalo Gap National Grassland, South Dakota and Thunder Basin National Grassland, Wyoming.

#5. Maintain at least 10% of total occupied acreage in colonies or complexes greater than 1,000 by 2011.

**FS Response: Also in Strategy 1.3 the State clearly recognizes its independence:** South Dakota's prairie dog management plan has identified our own goals and objectives, which are specific to South Dakota. We reserve the right to preserve our own management authority. (Underlined emphasis added by FS).



Strategy 1.4: Implement administrative measures, if necessary, to assist in meeting and maintaining statewide population goal.

Strategy 1.4a: Establish a prairie dog shooting closure to protect litters.

**FS Response: Concur:** "In November of 2004, the South Dakota Game, Fish, and Parks Commission removed the Conata Basin closure and deferred shooting regulations for this specific area to the US Forest Service."

Strategy 1.4b: Determine an alternative to state declared pest species status.

**FS Response: Do not concur:** As part of this legislative effort the State passed another law, SB216, declaring the prairie dog a pest if 4 conditions are met, which they currently do. The law also implies the State may control dogs on Federal land with this status.

Strategy 1.4c: Investigate methods to assure that South Dakota continues to meet its non-tribal acreage goal of 166,958.

**FS Response: Concur.** This section covers incentives, inventory intervals of 3 years, shooting surveys and shooting restrictions based on 3 ranges of acres. We fully defer to the State to set shooting restrictions on National Grasslands outside of Conata Basin (see Strategy 1.4a above).

Strategy 1.4d: Prevent prairie dogs from encroaching upon adjoining private lands.

**FS Response: Mixed; concur and do not concur.** "The state of South Dakota will execute a "good neighbor" policy on all lands by developing a "no tolerance" standard for prairie dogs moving onto lands where they are not wanted. When prairie dog colonies expand to another property and the property owner being encroached upon files a valid complaint, the primary landowner must control the prairie dogs back to one mile of said land boundary; such control must be ongoing so as to prevent future incursions."

**FS Response: We concur and are committed to the "good neighbor" policy.** The differences are the 4 points of this policy and standard; crosses, complains, control 1-mile, and on-going control. The State's 4 points are: 1) a colony must cross private land boundary; 2) the landowner must file a valid complaint; 3) primary landowner must control back 1 mile; and 4) control must be ongoing.

Our commitment to the "good neighbor" policy is to: 1) not wait until a colony crosses private boundary. We will be proactive and can poison if our inventory indicates a colony may cross within 1 to 2 years; 2) if we do not allow a colony to cross private boundary then a valid complaint is not warranted. We will cooperate in investigating and acting on any valid complaint the State receives; 3) we will control *up to* ¼ and ½ mile, depending on the circumstances; 4) our intent is the control will ebb and flow on an estimated 3 year control interval on any one colony, maybe shorter or longer depending on circumstances.

The issue with the 1-mile versus ¼ and ½ miles is a biological issue. If we control up to 1-mile we will have less than 100 acres on Ft. Pierre National Grassland, Oglala National Grassland, and Fall River District of Buffalo

**Gap National Grassland, mainly due to land ownership patterns. Most of the colonies are close to the federal-private land boundaries.**

**We believe we can contain the colonies using a smaller buffer concept using a variety of tools (i.e. vegetative buffers, grazing modifications and poisoning)**

**FS Response: Do not concur:** “In the case of irregular land boundaries, control efforts will use a buffer developed with US Fish and Wildlife Service assistance extending up to one mile from public-private boundaries, with variations in buffer width to adjust for the effect of irregular boundaries, such as “peninsulas” of federal land and private in-holdings. In cases where the buffer zone for control will be less than ½ mile, approval for the reduced buffer will be required between the USFS, SDGFP and the SD Dept. of Agriculture (Underlined emphasis added by FS).

**FS Response: We may discuss but not defer to other agencies on where to control.**

**FS Response: Do not concur:** “In addition, the USFS will modify the Forest Supervisor’s order regarding prairie dog shooting in Conata Basin. The shooting zone will use a buffer extending up to one mile from public-private boundaries, with variations in buffer width to adjust for the effect of irregular boundaries, such as peninsulas of federal land and private in-holdings. The USFS will also take steps to encourage outfitter guides to increase shooting pressure (Underlined emphasis added by FS).

The USFS will continue to live trap prairie dogs on their own lands, to increase efforts and to focus on complaint zones (Underlined emphasis added by FS).

**FS Response: The *concepts* we concur with, the *specifics* we do not, especially with the State directing us in a “must do” language. The ROD will approve *some* type of controlled shooting in Conata Basin.**

**FS Response: Concur:** “Complaint zones will be developed and mapped using the following protocol:”

Strategy 1.4e: Provide funding for prairie dog control.

**FS Response: Not applicable.**

Strategy 1.4f: Respond to private landowner complaints.

**FS Response: Concur.**

Strategy 1.4g: Provide annual report of state activities

**FS Response: Concur.**

**Objective 2. Determine an effective tool to monitor changes in estimated occupied acreage.**

**FS Response: Concur with all four strategies.**

**Objective 3: Develop a disease monitoring protocol for detecting sylvatic plague and other diseases detectable on prairie dog colonies, to include a contingency plan in case sylvatic plague is detected in South Dakota.**

**FS Response: Concur with all three strategies.**

**Objective 4. Determine and accommodate conservation needs of black-footed ferrets.**

Strategy 4.1: Review available information on state status of black-footed ferrets.

**FS Response: Concur.**

Strategy 4.2: Determine inventory needs for black-footed ferrets as they relate to prairie dogs.

**FS Response: Concur.**

Strategy 4.3: Incorporate conservation needs of black-footed ferrets into prairie dog management opportunities.

**FS Response: Concur with differences:** A major concern expressed by those living in the Conata Basin area was that the reintroduction of ferrets would eventually cause a subsequent increase in prairie dogs. File correspondence involving this issue indicates that as a condition of support for the reintroduction of black-footed ferrets, the State of South Dakota required that the prairie dog acreages remain between 8,000 and 12,000 acres. And if this acreage were to expand in the future, landowners should be provided compensation for any losses in revenue created by the expansion. Written assurances were received from the USFWS that this request would be honored and these acreage goals remain as the position of the State of South Dakota" (Underlined emphasis added by FS).

**US Forest Service and USFWS has set a range of 12,500 to 19,000 acres (depending on colony density) for Conata Basin federal grasslands. We are committed to this recovery effort.**

**FS Response: Do not concur:** "The prairie dog colonies impacted by this control effort are those outlined in Strategy 1.4d, dealing with the encroachment of prairie dog colonies from US Forest Service land onto private land in southwestern South Dakota" (Underlined emphasis added by FS).

**FS Response: Strategy 1.4d is the 1-mile poison buffer. Do not concur.**

Strategy 4.4: Investigate opportunities for cooperative conservation activities.

**FS Response: Concur with the use of incentives.**



**Objective 5: Use public involvement techniques to gather input.**

Strategy 5.1: Establish South Dakota Prairie Dog Working Group

**FS Response: Concurred with this effort.**

**Objective 6. Use adaptive management method to evaluate progress of prairie dog planning effort and adjust as needed to accomplish program goals.**

Strategy 6.1. Formulate interagency team to review progress toward meeting objectives at three-year intervals to coincide with population monitoring intervals.

**FS Response: Concur with this effort.**

**Objective 7. Identify and implement management actions that provide environmentally sound habitat for a sustainable population of healthy prairie dogs acceptable to landowners and managers in the state of South Dakota.**

Strategy 7.1. In order to provide environmentally sound habitats, the similarity index/range condition should be maintained at no less than a similarity index/range condition of 20% of the historic climax plant community, as described in the Natural Resources Conservation Service South Dakota State Technical Guide.

**FS Response: Concur.**



# APPENDIX I

## CONSISTENCY CHECK WITH THE LRMP

### LRMP Direction Related to Black-tailed Prairie Dogs

This appendix identifies the LRMP direction related to black-tailed prairie dog management activities. Alternative 2 and Alternative 3 (preferred) are compared to this direction for consistency. Where direction is not being met under Alternative 2 or 3, direction is proposed to be deleted or revised under an amendment to the LRMP. This proposed amendment and associated changes can be found in Appendix C. Alternative 1 is the no action alternation and therefore is meeting current LRMP direction.

Item #	LRMP Record of Decision and Appeal Decision Direction	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
#1	The black-tailed prairie dog is now listed as a candidate for protection under the Endangered Species Act, and recent surveys indicate approximately 15,000 acres of active prairie dog colonies on these public lands. An additional 26 species that are currently classified as sensitive in Region 2 of the Forest Service are known to occur on these areas. Providing for the viability of these species requires management direction that ensures the protection of habitats and populations on these public lands. It is imperative to me that my decision addresses this. <b>LRMP ROD</b>	Alternative 2 and Alternative 3 (preferred) meet this direction.
#2	I intend to implement the State-wide conservation plans for Nebraska and South Dakota to the extent allowable by law and policy in providing direction for the control of unwanted colonization of the prairie dog onto private lands. Should the State-wide conservation plans conflict with provisions of this plan, I will propose an amendment to make the plan consistent with those plans. Thus the Nebraska National Forest will continue to provide the goods and services needed by our society from which local businesses can continue to prosper. <b>LRMP ROD</b>	Alternative 2 and Alternative 3 (preferred) meet this direction.



Item #	LRMP Record of Decision and Appeal Decision Direction	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
#3	If Forest Service policy on prairie dog control changes at any given time, coordination and consultation with the FWS must occur prior to taking any action to control prairie dogs with rodenticides. <b>Appeal Decision, NNF Plan Revision</b>	Alternative 2 and Alternative 3 (preferred) meet this direction.
#4	Final decisions on proposed projects will be made after site-specific analysis and documentation in compliance with NEPA and are subject to appeal at that time. <b>LRMP ROD</b>	Alternative 2 and Alternative 3 (preferred) meet this direction.
#5	Standards and guidelines for ESA listed species are not flexible. Any deviation from management direction set forth in the revised Plans for threatened, endangered, proposed or candidate species (regardless of whether it is in the form of a standard or guideline) would require concurrence with the Fish and Wildlife Service, and a possible forest plan amendment. Moreover, all subsequent projects that may be proposed in habitat of ESA designated threatened, endangered, proposed and candidate species are subject to environmental analysis and the development of biological assessments. <b>Appeal Decision, NNF Plan Revision</b>	Alternative 2 and Alternative 3 (preferred) meet this direction.

Item #	Chapter 1 Standards & Guidelines	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
<b>Physical Resources – Water</b>		
#6	2. Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (exceptions shall occur in special habitat situations (e.g. prairie dog habitat). <b>Standard</b>	Land treatments (i.e. vegetative management fencing) are required to follow watershed conservation practices direction. Alternative 2 and Alternative 3 (preferred) meet this standard.
#7	12. Apply chemicals using methods described in label instructions that minimize risk of entry to surface and ground water. <b>Standard</b>	Alternative 2 and Alternative 3 (preferred) meet this standard.
<b>Physical Resources - Paleontological</b>		
#8	1. Protect key paleontological resources (Classes 3, 4, and 5 of the Fossil Potential Classification) from disturbance, or mitigate the effects of disturbance, to conserve scientific, interpretive, and legacy values. <b>Standard</b>	Alternative 2 and Alternative 3 (preferred) meet this standard.
<b>Biological Resources - Fish, Wildlife and Rare Plants</b>		
#9	2. Modify livestock grazing practices as needed to reduce adverse impacts of drought on food and cover for prairie grouse and other wildlife. <b>Standard</b>	This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred).

Item #	Chapter 1 Standards & Guidelines	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
#10	<p>15. To help reduce disturbances to breeding and nesting sharp-tailed grouse, do not authorize the following activities within 1.0 mile of active display grounds from March 1 to June 15:</p> <ul style="list-style-type: none"> <li>• Construction (e.g., roads, water impoundments, pipelines, utilities, oil and gas facilities, fencing),</li> <li>• Reclamation,</li> <li>• Gravel mining operations,</li> <li>• Seismic exploration,</li> <li>• Oil and gas drilling,</li> <li>• Drilling of water wells,</li> <li>• Permitted recreation events,</li> </ul> <p>Training of bird hunting dogs. <b>Guideline</b></p>	<p>Alternative 2 and Alternative 3 (preferred) meet this guideline.</p>
#11	<p>20. To help provide suitable habitat for black-footed ferrets and their young during the breeding and whelping seasons, do not authorize the following activities within 1/8 mile of prairie dog colonies, or those portions of larger colonies, occupied or thought to be occupied by ferrets from March 1 through August 31:</p> <ul style="list-style-type: none"> <li>• Construction (e.g., pipelines, utilities, fencing),</li> <li>• Seismic exploration,</li> </ul> <p>Permitted recreation events involving large groups of people. <b>Guideline</b></p>	<p>Alternative 2 and Alternative 3 (preferred) meet this guideline.</p>
#12	<p>21. Any net loss of suitable black-footed ferret habitat as a result of prairie dog poisoning or development of new facilities within colonies shall be replaced within the year. This is based on the amount of suitable habitat available prior to prairie dog dispersal in the year of the poisoning or development. <b>Standard</b></p>	<p>This standard is proposed for deletion as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred).</p>



Item #	Chapter 1 Standards & Guidelines	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
#13	<p>36. To reduce disturbances to breeding and nesting prairie chicken, do not authorize the following activities within 1.0 mile of active display grounds from March 1 to June 15:</p> <ul style="list-style-type: none"> <li>• Construction (e.g., pipelines, utilities, fencing),</li> </ul> <p>Permitted recreation events. <b>Guideline</b></p>	Alternative 2 and Alternative 3 (preferred) meet this guideline.
#14	<p>41. To optimize habitat for burrowing owls, manage for active prairie dog colonies that are larger than 80 acres. <b>Guideline</b></p>	This guideline would be applied to areas where burrowing owls are being managed for. Alternative 2 and Alternative 3 (preferred) meet this guideline.
<b>Biological Resources - Fish, Wildlife and Rare Plants</b> <b>Black-tailed Prairie Dog</b>		
#15	<p>42. Restrict prairie dog shooting where significant risks have been identified for other wildlife species or where shooting is preventing or slowing a desired prairie dog population expansion. Restrictions shall be year-long or seasonal, and dates of seasonal restrictions shall vary depending on the species at risk. Coordinate and consult with the appropriate wildlife agencies prior to implementation of restrictions. <b>Guideline</b></p>	This guideline is proposed for deletion as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). The Forest Service will defer to state authority for regulatory actions outside black-footed ferret habitat.
<b>Biological Resources – H. Animal Damage Management</b>		
#16	<p>1. Limit the use of rodenticides (grain baits) for reducing prairie dog populations to the following situations:</p> <ul style="list-style-type: none"> <li>• Public health and safety risks occur in the immediate area,</li> <li>• Damage to private and public facilities, such as cemeteries and residences.</li> </ul> <p><b>Standard</b></p>	This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). An additional bullet statement was added stating, "to respond to unwanted prairie dog colonization on adjoining agriculture lands.

Item #	Chapter 1 Standards & Guidelines	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
#17	2. Consult state-wide prairie dog conservation strategies for additional guidance on the appropriate response to complaints of unwanted prairie dog colonization on adjoining agricultural lands (private, state, and tribal lands). <b>Guideline</b>	This guideline is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred).
#18	3. Reduce conflicts with adjacent landowners over prairie dog management through an active landownership adjustment program. <b>Guideline</b>	Alternative 2 and Alternative 3 (preferred) meet this guideline.
#19	4. Prohibit use of rodenticides (above-ground grain baits) for reducing prairie dog populations outside the period October 1 to December 31 to reduce risks to migratory birds. To reduce risk to other wildlife, do not use burrow fumigants in prairie dog colonies. <b>Standard</b>	This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). The rodenticide use period was extended to January 31.

Item #	Chapter 1 Standards & Guidelines	Consistency Check with Alternative 2 and Alternative 3 (Preferred )
<b>Administration M. - Land Ownership</b>		
#20	<p>3. Consider the following when opportunities to acquire lands occur (Reference 36 CFR 254):</p> <ul style="list-style-type: none"> <li>▪ Lands that include prairie dog colonies or that present opportunities to allow expansion of colonies are a high priority.</li> <li>▪ Lands that would reduce conflicts between Forest Service, tribal lands and private landownership objectives, especially when conflicts are adversely impacting National Forest System management. This includes reducing conflicts involving the management of prairie dog colonies along National Forest System lands.</li> <li>▪ Avoid land adjustments that could result in a trend toward federal listing or loss of population viability for species of concern. Sensitive species habitat can be conveyed if conveyance would not result in a trend toward federal listing or adversely impact the population viability of the species, or if mitigation and compensation values gained in acquired lands are to be considered, or if effects could be mitigated. <b>Guideline</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet this guideline.
<b>Administration M. – Natural Heritage Resources</b>		
#21	<p>5. Protect heritage resources from damage by activities or vandalism through project design, specified protection measures, monitoring, and coordination. <b>Standard</b></p>	Alternative 2 and Alternative 3 (preferred) meet this standard.



Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
<b>Fall River Southeast Geographic Area</b>		
#22	<b>Wildlife, Fish and Rare Plants Objectives</b> 1. Management Indicator Species: <b>Black-tailed Prairie Dog</b> <ul style="list-style-type: none"> <li>• Increase black-tailed prairie dog populations over the next 10 to 15 years. <b>Objective</b></li> <li>• Maintain or expand the current distribution of black-tailed prairie dogs across the geographic area over the next 10 to 15 years. <b>Objective</b></li> <li>• Develop a prairie dog colony complex in the northeastern part of this geographic area over the next 10 to 15 years. This area has been designated as MA 3.63 (see Chapter 3). <b>Objective</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet these objectives.
<b>Fall River West Geographic Area</b>		
#23	<b>Wildlife, Fish and Rare Plants Objectives</b> 1. Management Indicator Species: <b>Black-tailed Prairie Dog</b> <ul style="list-style-type: none"> <li>• Increase black-tailed prairie dog populations across the geographic area over the next 10 to 15 years. <b>Objective</b></li> <li>• Maintain or expand the current distribution of black-tailed prairie dogs across the geographic area over the next 10 to 15 years. <b>Objective</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet these objectives.

Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred)																													
<b>Wall Southeast Geographic Area</b>																															
#24	Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation	This guideline is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). The 3.63 prescription area of 5,130 acres is proposed to be reallocated to a 6.1 prescription due to the lack of prairie dog habitat in this area.																													
	<table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>5,130</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>76,170</td></tr> </table>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	5,130	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis	76,170	<p>Chapter 2, Wall Southeast Geographic Area Management Area Prescription Allocation</p> <table> <tr> <th>Number</th><th>Prescription</th><th>Acres</th></tr> <tr> <td>1.31</td><td>Backcountry Recreation Nonmotorized</td><td>12,030</td></tr> <tr> <td>3.63</td><td>Black-footed Ferret Reintroduction Habitat</td><td>0</td></tr> <tr> <td>3.64</td><td>Special Plant and Wildlife Habitat</td><td>1,160</td></tr> <tr> <td>6.1</td><td>Rangeland with Broad Resource Emphasis</td><td>81,300</td></tr> </table>	Number	Prescription	Acres	1.31	Backcountry Recreation Nonmotorized	12,030	3.63	Black-footed Ferret Reintroduction Habitat	0	3.64	Special Plant and Wildlife Habitat	1,160	6.1	Rangeland with Broad Resource Emphasis
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Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
<b>Wall Southwest Geographic Area</b>		
#25	<p><b>Wildlife, Fish and Rare Plants Objective</b></p> <p>1. Management Indicator Species:</p> <p><b>Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>To help increase prairie dog populations and habitat for associated species, enhance and maintain three or more prairie dog colony complexes in this geographic area. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, shall be considered part of a complex. <b>Objective</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet this objective.
#26	<p><b>Wildlife, Fish, and Rare Plants</b></p> <p>1. Management Indicator Species:</p> <p><b>Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>Continue to emphasize an active landownership adjustment program in this geographic area in an attempt to reduce private land conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations in this area.</li> </ul> <p><b>Guideline</b></p> <ul style="list-style-type: none"> <li>In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or re-establish past colonies in this geographic area. <b>Guideline</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet these guidelines.



Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
<b>Fort Pierre Geographic Area</b>		
#27	<p><b>Wildlife, Fish, and Rare Plants Objective</b></p> <p>1. Management Indicator Species:</p> <p><b>Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>To increase prairie dog populations and habitat for associated species, establish one or more prairie dog colony complexes in the northeast portion (Sand and Timber Creek drainages) of this geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private and tribal, may be considered part of a complex. <b>Objective</b></li> </ul>	<p>This objective is proposed for deletion as part of a LRMP amendment for Alternative 2 (colony complex meeting specific criteria is unattainable under this alternative). Alternative 3 (preferred) meets this objective.</p>

Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
#28	<p><b>Wildlife, Fish, and Rare Plants</b></p> <p>1. Management Indicator Species:</p> <p><b>Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>• Encourage land exchanges in the northeast portion of this geographic area to reduce conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations in this area. Land exchanges may need to be completed in some locations before some of the following guidelines may be fully implemented.</li> </ul> <p><b>Guideline</b></p> <ul style="list-style-type: none"> <li>• Manage livestock grazing in the northeast portion of this geographic area to encourage prairie dog colony expansion in interior areas and to slow expansion along property boundaries. The appropriate livestock grazing strategies for individual areas will be identified as site-specific management plans are revised. <b>Guideline</b></li> <li>• In cooperation and coordination with the state wildlife agency, restrict prairie dog shooting in the northeast part of this geographic area as needed to encourage prairie dog population expansion. <b>Guideline</b></li> <li>• In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or to re-establish past colonies in the northeast part of this geographic area. <b>Guideline</b></li> </ul>	Alternative 2 and Alternative 3 (preferred) meet these guidelines.

Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
<b>Oglala Geographic Area</b>		
#29	<b>Desired Condition</b> <b>Prairie Dog Colonies:</b> These areas will be managed to maintain and enhance low structure grassland habitat on 10 to 30 percent of this geographic area to facilitate black-tailed prairie dog expansion.	This desired condition statement was reworded to clarify that prairie dog habitat is managed as part of the vegetative structure objective of 10 to 30 percent for the geographic area under Alternatives 2 and 3.
#30	<b>Wildlife, Fish, and Rare Plants Objective</b> 1. Management Indicator Species: <b>Black-tailed Prairie Dog</b> <ul style="list-style-type: none"> <li>To help increase prairie dog populations and habitat for associated species, establish a prairie dog colony complex in the geographic area over the next 10 to 15 years. Colonies protected by conservation agreements or easements on adjoining land jurisdictions, including private, may be considered part of a complex. <b>Objective</b></li> </ul>	This objective is proposed for deletion as part of a LRMP amendment for Alternative 2 (colony complex meeting specific criteria is unattainable under this alternative). Alternative 3 (preferred) meets this objective.



Item #	Chapter 2 Geographic Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
#31	<p><b>Wildlife, Fish, and Rare Plants</b></p> <p>1. Management Indicator Species:</p> <p><b>Black-tailed Prairie Dog</b></p> <ul style="list-style-type: none"> <li>• Encourage land exchanges in this geographic area to reduce conflicts over prairie dog management and to enhance long-term management opportunities for expanding prairie dog populations. Land exchanges may need to be completed in some locations before some of the following guidelines may be fully implemented. <b>Guideline</b></li> <li>• Manage livestock grazing to encourage prairie dog colony expansion in interior areas and to slow expansion along property boundaries. The appropriate livestock grazing strategies for individual areas will be identified as site-specific management plans are revised. <b>Guideline</b></li> <li>• In cooperation and coordination with the state wildlife agency, restrict prairie dog shooting as needed to encourage prairie dog population expansion. <b>Guideline</b></li> <li>• In cooperation and coordination with the state wildlife agency, relocate prairie dogs as needed to establish new colonies or to re-establish past colonies in this area. <b>Guideline</b></li> </ul>	<p>Alternative 2 and Alternative 3 (preferred) meet these guidelines.</p>

Item #	Chapter 3 Management Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
<b>3.63 Black-Footed Ferret Reintroduction Habitat</b>		
#32	<p><b>General</b></p> <p>1. Authorize only those uses and activities that do not reduce the suitability of the area as black-footed ferret reintroduction habitat. <b>Standard</b></p> <p>2. Manage all prairie dog colonies within this Management Area as though they were occupied by black-footed ferrets, and apply all Standards and Guidelines as though black-footed ferrets occupy all colonies. <b>Standard</b></p>	<p>1. This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred).</p> <p>2. This standard is proposed for deletion with no replacement as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). This is a redundant standard in the LRMP.</p>
#33	<p><b>Fish and Wildlife</b></p> <p>1. Use of rodenticides in a colony to reduce prairie dog populations may occur only after consultation and concurrence of the U.S. Fish and Wildlife Service. The conditions when prairie dog poisoning may be authorized are presented in Chapter 1. <b>Standard</b></p> <p>2. Relocation of prairie dogs to establish new colonies and accelerate growth of prairie dog populations in selected areas may occur only after consultation with appropriate state and Federal wildlife agencies. <b>Standard</b></p>	<p>1. This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred).</p> <p>2. Alternative 2 and Alternative 3 (preferred) meet this standard.</p>

Item #	Chapter 3 Management Area Direction	Consistency Check with Alternatives 2 and 3 (Preferred )
#34	<b>Recreation</b> 1. To help expand and maintain suitable black-footed ferret habitat, prohibit prairie dog shooting. Coordination and consultation with the state wildlife agency will occur prior to any Forest Service actions regarding prairie dog shooting restrictions. <b>Standard</b>	This standard is proposed for revision as part of a LRMP amendment for Alternative 2 and Alternative 3 (preferred). This standard further clarifies the Conata Basin and Smithwick reintroduction habitat.

Item #	Chapter 4 Monitoring and Evaluation	Consistency Check with Alternatives 2 and 3 (Preferred )
#35	See monitoring direction in Chapter 4 of the LRMP.	Alternative 2 and Alternative 3 (preferred) meet this direction.



## APPENDIX J

### LRMP AMENDMENT FACTORS OF SIGNIFICANCE OR NON-SIGNIFICANCE

The following factors are to be used when determining whether a proposed change (Alternative 3 – Preferred) to a forest plan is significant or not significant, based on NFMA planning requirements.

- A. **Timing.** Timing identifies when the change is to take place. The life of a Forest Plan is 10 years. The current LRMP was signed and began implementation July 31, 2002. The proposed management actions that are not currently described in the LRMP (i.e. rodenticide use) will be discussed in the Record of Decision for black-tailed prairie dog management on the Nebraska National Forest. This activity would likely begin in the late fall of 2005 and/or early 2006 and continue for the remainder of the Forest Plan period (2012).
- B. **Location and Size.** Location and size defines the relationship of the affected area to the overall planning area. The NFS land planning area for the Nebraska National Forest is approximately 1,062,500 acres. The primary proposed management action in relation to the proposed changes to the LRMP involves rodenticide use in boundary management zone areas. This area equates to approximately 458,500 acres or 43 percent of the total NFS land area under Alternative 3 (preferred). It should be noted that the boundary management zones are not 100 percent occupied by prairie dog colonies. Approximately 11,970 acres or 2.6 percent of the boundary management zones are occupied by prairie dog colonies. The analyses of Alternatives 3 (preferred) assume all colonies within boundary management zones are eventually treated with rodenticide. In reality, many of these colonies would be treated with rodenticide but some would not because they are not encroaching or about to encroach on adjoining lands. Therefore, predictions of annual rodenticide use are considered maximums.
- C. **Goals, Objectives, and Outputs.** The LRMP applicable goals, objectives, and outputs are reviewed to determine whether the proposed LRMP amendment alters the long-term relationships between the levels of goods and services projected by the LRMP.

<b>Goal 1: Ensure Sustainable Ecosystems</b> Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands and watersheds.		
<i>Appendix C Proposed LRMP Item Changes: #14, 15, 16, 18, 19, 20, 21, 22</i>	<p><i>Goal 1.b: Provide ecological conditions to sustain viable populations of native and desired non-native species and to achieve objectives for Management Indicator Species (MIS).</i></p> <p><b>Objectives 2, 4, and 6 (summarized):</b> Demonstrate positive trends in population, habitat availability and quality for threatened, endangered, sensitive species and MIS.</p>	<p>Under Alternative 3 (preferred) it is predicted black-tailed prairie dog management would result in an upward trend in prairie dog populations (FEIS Chapter 3, Table 3-12 comparisons of the 1996-97 acreages with the predicted acreages for 2012). The Biological Assessment and Evaluation process determined that there would be no adverse affect on any federally listed species population, and no adverse impact on any sensitive species population (FEIS Chapter 3, Section 3.7). Chapter 3, Section 3.8 determined the MIS populations and habitat are not impacted.</p>
<b>Goal 4: Effective Public Service</b> Ensure the acquisition and use of an appropriate corporate infrastructure to enable the efficient delivery of a variety of uses.		
<i>Appendix C Proposed LRMP Item Change: #16, 17, 23, 24</i>	<p><b>Public and Organizational Relations</b></p> <p><b>Objective 2:</b> Work in cooperation with federal, state, and county agencies, individuals, Indian tribes, and non-government organizations for control of noxious weeds and invasive species and animal damage.</p>	<p>The revisions within the proposed LRMP amendment will not deter cooperative working relationships with federal, state, and county agencies, individuals, Indian tribes, and non-government organizations for control of noxious weeds, invasive species and animal damage.</p>

**Management Prescription.** The management prescription is reviewed to determine if the change is for a specific situation and whether or not the change alters the desired condition of the land and resources or the anticipated goods and services to be produced. The change of 5,130 acres of the Wall Southeast Geographic Area from Management Area 3.63 Prescription Allocation to Management Area 6.1 Prescription Allocation is specific in nature (see Appendix A, Maps 9 and 10). This change in land use allocation does not change the goods or services that otherwise would be produced. Black-footed

ferrets have not occupied this area. After coordination with the U.S. Fish and Wildlife Service, it is mutually agreed that the area is now considered unsuitable for black-footed ferret recovery. This re-allocation will not threaten the black-footed ferret population thresholds and recovery efforts, nor will it alter the current livestock grazing activities and outputs.







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